NOVEMBER 25, 1944

1894?

Railway Age

Founded in 1856

Sec. 31

The Library of Congress Serial Record
NOV 28 1944
Copy

Coaling Stations must handle both COAL and CORROSION . . . Protect them with

BYERS WROUGHT IRON

Proper design of a coaling station involves more than the calculation of stresses and strains. It must include careful material selection, for sulfur compounds leached from the coal form aggressive acids that speedily destroy ordinary materials.

Byers Wrought Iron has been widely used for this service. An engineering report recently received on the casing of an industrial coal elevator explains why.

. . . June, 1935: the casing (built of low first-cost, 10-gage material) was first put into operation.

. . . December, 1936: small holes appeared in casing.

. . . December, 1936 to October, 1938: casing maintained by considerable patching. Deterioration rapid and maintenance excessive. Engineer estimated the true useful life of this first casing extended only from June, 1935 to January, 1937. Coal conveyed during period: 14,658 tons.

. . . October 1, 1938: new casing of ¼-in. wrought iron installed.

. . . November, 1943: Inspection revealed that partition wall had worn through in various spots. During entire period, not one nickel was spent for repairs. Since repairing partition would have required dismantling of the elevator, a new casing was ordered. Coal conveyed to end of 1943: 88,651 tons.

Adjusting for the 56% greater thickness of wrought iron, equivalent service was obtained after 29.65 months of service, and after handling 22,866 tons of coal. The *actual* useful life was twice as long, and the useful work done 3.8 times as great as the equivalent.

This unusual service is of course the direct result of wrought iron's unusual structure—tiny fibers of glass-like silicate slag threaded through a matrix of high-purity iron. The fibers halt and diffuse corrosive attack, and also help to anchor the initial protective film that shields the underlying metal.

Some interesting coaling stations are described in our bulletin, "Wrought Iron for Flue Gas Conductors and Coal Handling Equipment." Let us send you a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

BYERS

GENUINE WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE ALLOY STEELS · OPEN HEARTH ALLOY STEELS
CARBON STEEL TUBULAR PRODUCTS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

MT. VERNON
Chilled Car Wheels

MT. VERNON wheels are made in one of America's most modern and completely mechanized foundries.

MECHANIZATION *Plus* PRECISION CONTROL

Mechanical handling plus precise control of all operations accounts for the amazing uniformity in the quality of Mt. Vernon chilled car wheels. Constant research in the Mt. Vernon metallurgical laboratories has resulted in longer life, more ton-miles per wheel. Service records contain ample proof of the remarkable wearing qualities of Mt. Vernon wheels.

MT. VERNON CAR MFG. CO.

MT. VERNON, ILL.

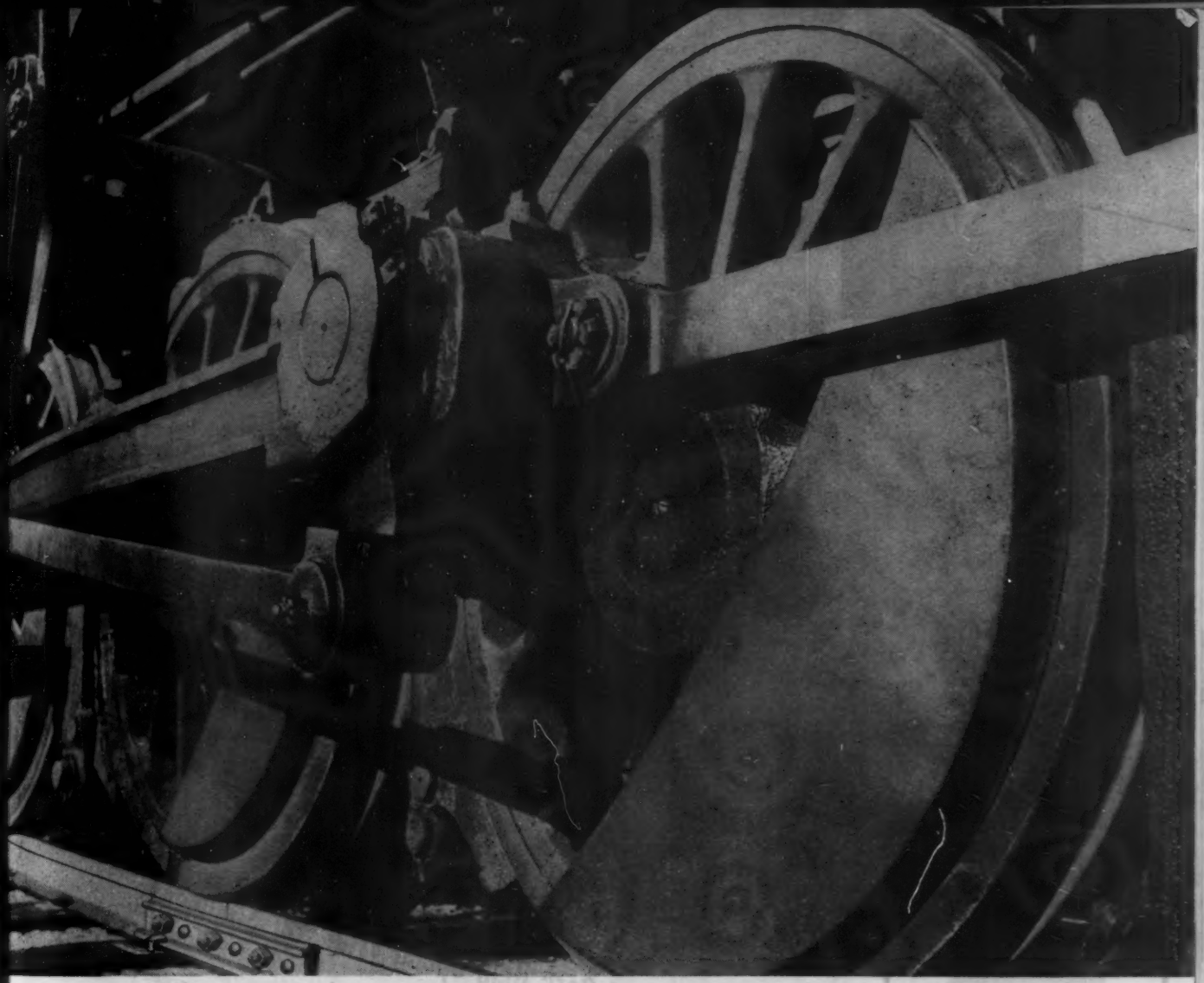
PORTER Better Built Equipment Established 1866

Division of **H. K. PORTER COMPANY, Inc.**

PITTSBURGH 22, PENNSYLVANIA

Factories at Mt. Vernon, Ill. • Pittsburgh, Pa. • Blairsville, Pa. • McKeesport, Pa. Newark, N. J. • New Brunswick, N. J.

Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 1933, at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 117, No. 22.



Inland Rail Can Take It

Each day the driving wheels of powerful locomotives, like those shown above, travel the thousands of miles of main line track laid with Inland Control-Cooled Rail.

Inland Control-Cooled Rail resist high bending stresses, shock, vibration, and wear. They are made to withstand modern traffic conditions —heavier and more powerful locomotives, heavier car loading, higher speeds, and denser traffic. They are made to perform this service with maximum safety that assures the speedy and prompt delivery of war supplies, and protection of rolling stock and those who ride it.

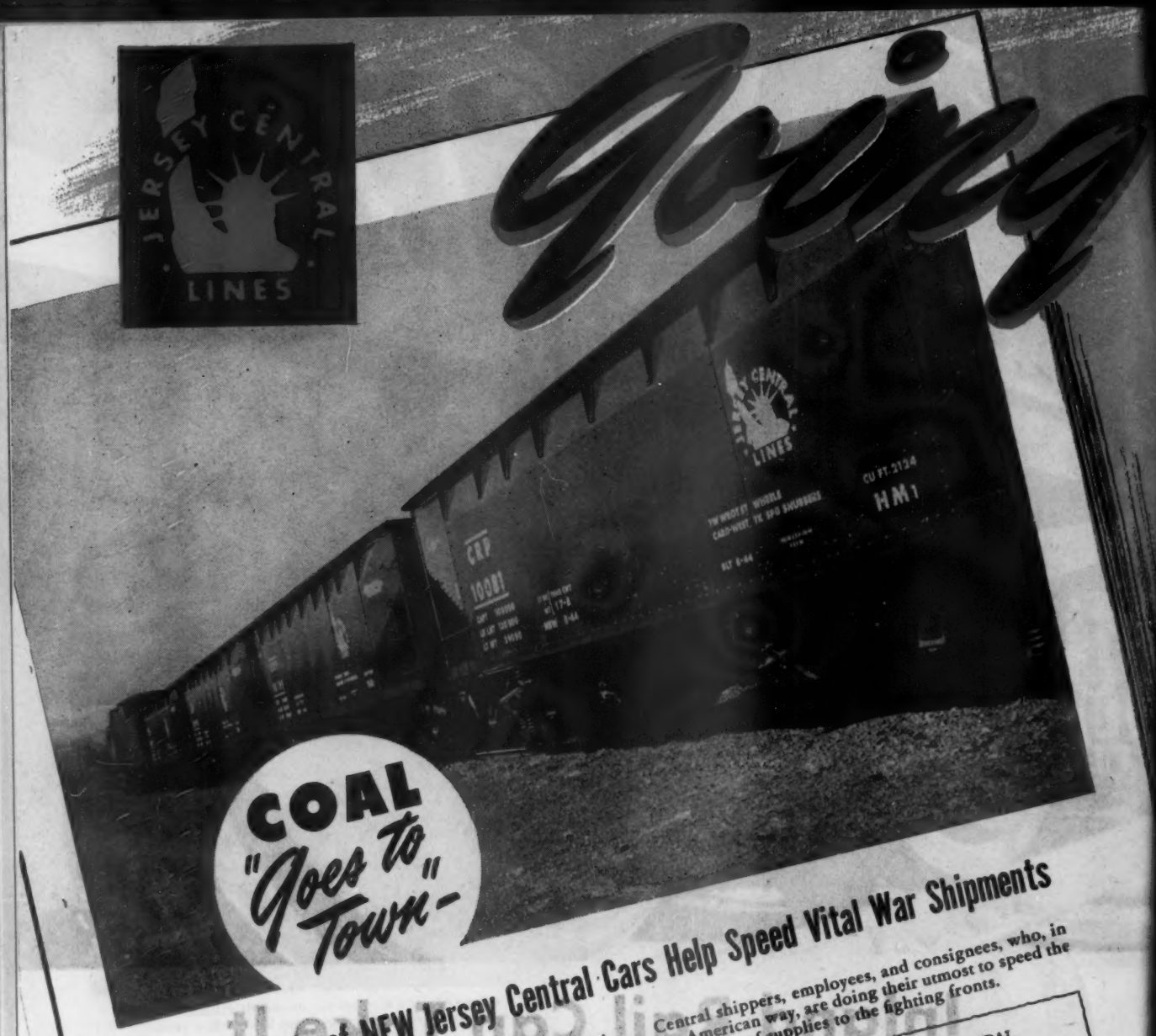
Inland Control-Cooled Rail can be counted on to continue to give long service and maximum safety in handling the commerce of our country.

Bars • Plates • Floor Plate • Structurals • Piling • Rail • Track Accessories • Reinforcing Bars • Sheets • Strip • Tin Plate

INLAND STEEL COMPANY

38 S. Dearborn St., Chicago 3, Ill.

Sales Offices: Cincinnati • Detroit • Kansas City • Milwaukee • New York • St. Louis • St. Paul



Thousands of NEW Jersey Central Cars Help Speed Vital War Shipments

Graphic proof of Jersey Central's modernization program are these new, 50-ton capacity coal cars. Five hundred of them, bearing the new Jersey Central Lines "Miss Liberty" emblem, have just gone into service between Pennsylvania's coal mines and the metropolitan areas—helping to carry the tremendous quantities of fuel so vital to our war industries and homes.

Since the outbreak of war in Europe, the Jersey Central has ordered 3,800 new freight cars of a wide range of types, along with ten new Diesel switching locomotives for use in its busy harborside yards—all aiding the war effort by helping provide better service to shippers and consumers, including the armed services. Peacetime will bring further improvements.

The new Jersey Central Lines emblem, featuring "Miss Liberty", pays silent tribute to the thousands of Jersey Central shippers, employees, and consignees, who, in the American way, are doing their utmost to speed the movement of supplies to the fighting fronts.

GET A JOB WITH JERSEY CENTRAL

● Openings at many convenient New Jersey locations. Interesting, war-vital work in profitable jobs, with seniority protection, federal pension and unemployment insurance. Persons now engaged in essential work need releases. Talk it over with your local Jersey Central Agent, or apply at any office of the United States Employment Service or the Railroad Retirement Board.

JERSEY CENTRAL LINES

hipments

signees, who, in
host to speed the
fronts.

CENTRAL
venient
Interest-
n profit-
rity
pension and
ce. Persons
tial work
it over
sey Central
any office of
Employment
lroad Retire-

LINES

to Town in..

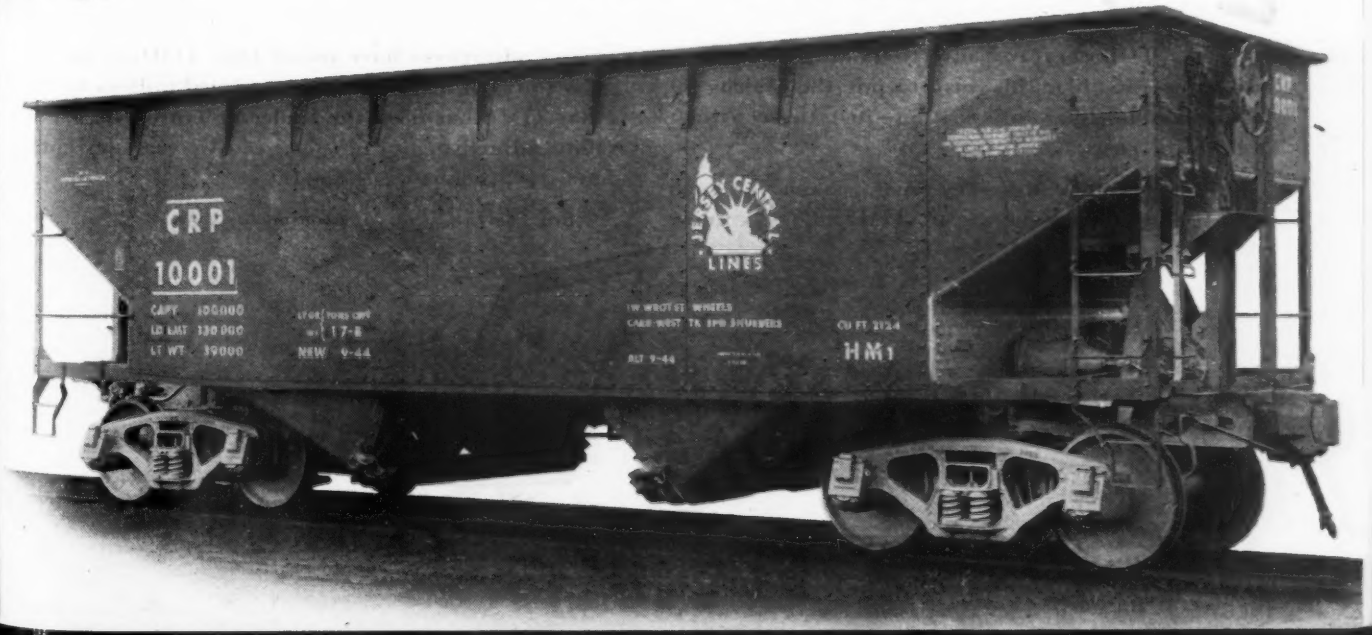
PRESSED STEEL CARS

VITAL to the success of the war, the New Jersey Central fully recognizes its responsibilities and is doing an excellent job by providing the highest standard of service to shippers, consumers and especially to the armed forces.

Included among the new cars ordered by the Jersey Central since the beginning of the war are 500 recently delivered 50-ton capacity coal cars, built by Pressed Steel Car, which are doing an outstanding job in delivering tremendous quantities of fuel so vital to our war industries and the homes. These coal cars and other freight cars built by Pressed Steel Car will continue to "Go to Town" for the Jersey Central because their rugged construction, durability and safety at high speeds enable these cars to deliver a satisfactory, money-saving service during their long life.

PRESSED STEEL CAR COMPANY, INC.

NEW YORK • PITTSBURGH • CHICAGO



Now that the war is over
THIS CAN BE A PICTURE OF YOU!
All through the war years you promised yourself: "Some day when victory is won, I will take a real vacation . . . in the Canadian Rockies! There the giant mountains of the North, even wilder and more brilliant than the Alps, will help me forget the troubled past—help me see the beauty that still remains—help restore my faith in my own and the world's future.
"I will watch the Bow River as it runs like a sparkling ribbon down the valley below the luxurious Banff Springs Hotel . . . I will sit above a bowl of glacial water, green or peacock-blue or amethyst, called Lake Louise.
"I will motor along the 150-mile highway that winds through the Columbia icefield, a vast sea of ice 110 miles square surrounded by peaks that soar 11,000 feet into the sky . . .
"I will scale cliffs and explore glaciers . . . ride trail . . . and fish for mountain trout or hunt big game (outside the parks) . . . play golf on mile-high courses . . . and, in the game sanctuaries, take camera shots of deer, beaver, bear, mountain goat or carribou . . .
"All this while I sleep and eat in magnificent hotels for as little as $7 a day with meals."
Call or write to any railroad or air line—or see your local travel agent and talk over your trip.

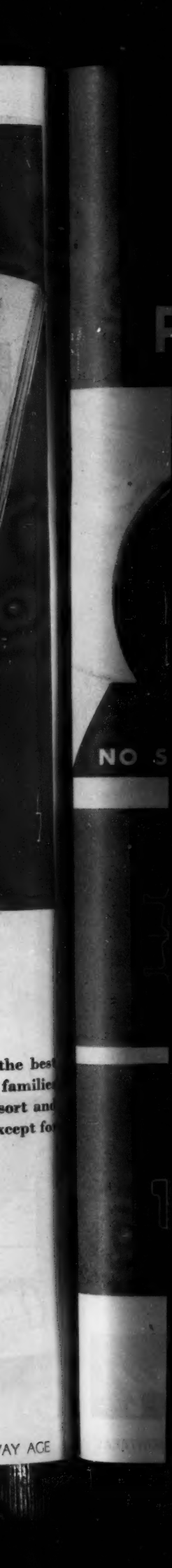
Long time no see!

TODAY, travel advertisers are dreaming up advertisements like this just to put their ideas for future travel-selling into writing—just to keep their eyes on the postwar ball.

But when people can go places again, chances are such advertisements will appear in TIME. For so many travel advertisers have found that TIME is the best way to reach America's most traveled million families that TIME has been the leader in Travel, Resort and Hotel advertising for nine consecutive years (except for one year when it was second).

And TIME will be tops tomorrow, too.

THE WAY TO REACH AMERICA'S MOST TRAVELED MILLION



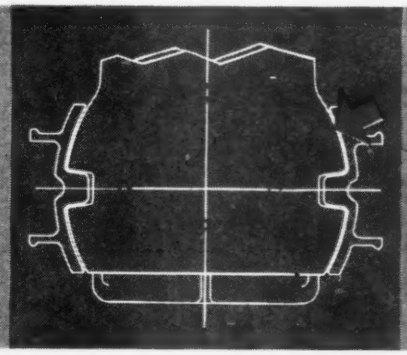
TIME is the best
d million families
Travel, Resort and
e years (except for

oo.

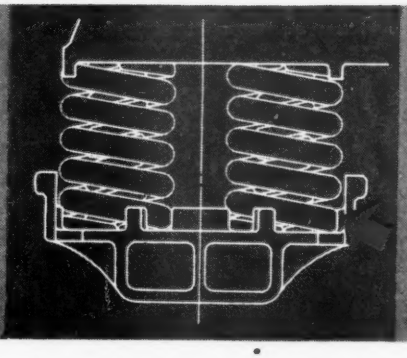
N

THE A.S.F.
BASIC
FREIGHT-CAR TRUCK

NO SPRING PLATES NO SPRING PLANKS



Here is a rugged truck of simple design that combines all the essentials of a smooth, stable freight-car ride with the low-maintenance and safety benefits of simple construction. The A. S. F. Basic Freight-Car Truck is held together by rugged tongues on the side frame columns that mesh with grooves in the bolster. Curved surfaces between side frame columns and bolster minimize column wear, eliminate binding, and provide generous contact areas that assure dependable operation.



Simple construction is evident in the flanged spring seat that is an integral part of the side frame. Every side frame and bolster meets all A. A. R. strength requirements, of course. And for greater utility, for the interchangeability that means so much especially on interchange service, the Basic Truck can be used with either all-coil spring groups or combination snubber-coil spring groups. The Basic Truck is a safe freight-car truck.

AMERICAN STEEL FOUNDRIES

CHICAGO

MINT-MARK OF QUALITY FINE CAST STEEL

10 new 4-8-4 type locomotives for the ROCK ISLAND are equipped with three Syphons in the firebox and one Syphon in combustion chamber, adding 155 square feet (37%) to the firebox heating surface of 423 square feet.
5100
Rock Island

SYPHON LOCOMOTIVES ARE BETTER

Designing Engineers Like Syphons for

MORE HEATING SURFACE

MORE CIRCULATION

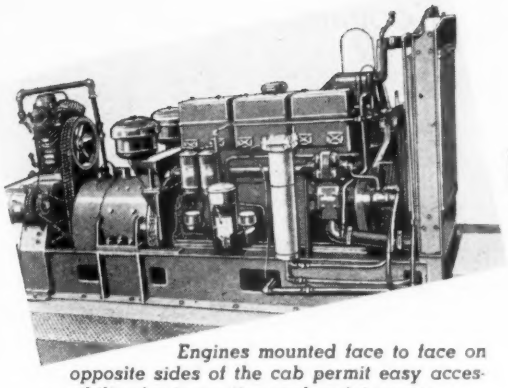
MORE BOILER HORSE POWER

SAFETY FROM BOILER EXPLOSION

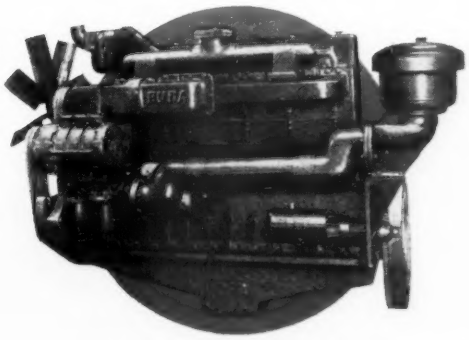
23,967 Syphons used on 9,980 locomotives on 189 railroads

Locomotive Firebox Company

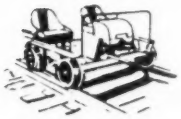
PHILADELPHIA CHICAGO MONTREAL



Engines mounted face to face on opposite sides of the cab permit easy accessibility for inspection and maintenance.



BUDA model 6-DCS-1879 Supercharged Diesel used in above Whitcomb locomotive.



Motor Cars

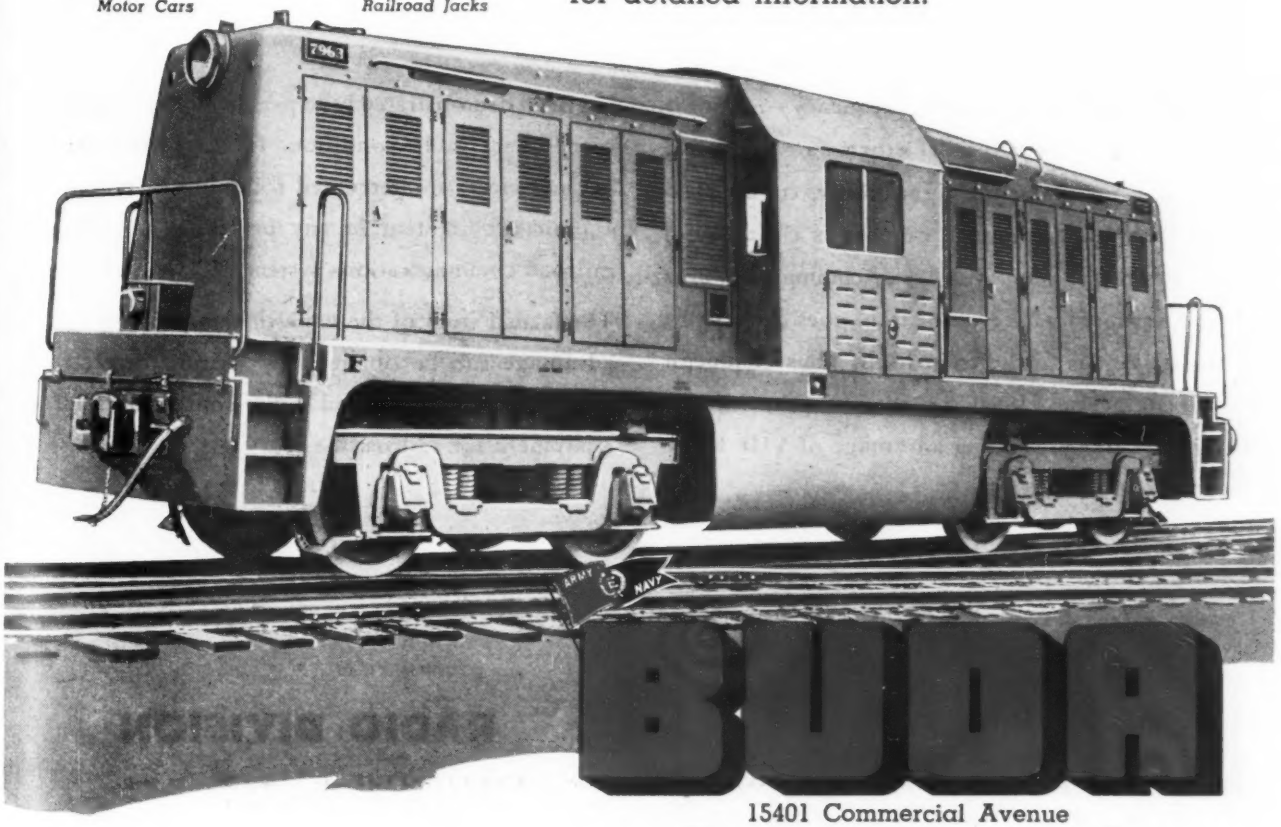
Railroad Jacks

BUDA powered means ...

more Net Income

Because of availability—fast acceleration—high tractive effort—low fuel costs and minor maintenance requirements, sturdy BUDA powered Diesel locomotives are getting more work done in terminals, freight centers and busy yards in less time and at lower costs, resulting in more net income.

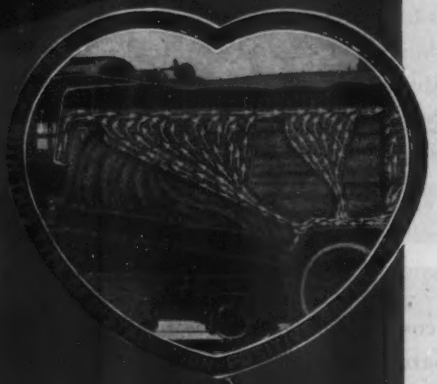
The smooth, versatile power of BUDA Diesels, designed to meet rugged railroad requirements, are not only proving to be a match for the challenge of today's tremendous railroad problems, but are doing the job quicker and more efficiently. Write or wire for detailed information.



15401 Commercial Avenue
Harvey (Chicago Suburb) **Illinois**

10 new 4-8-4 type locomotives for the ROCK ISLAND are equipped with three Syphons in the firebox and one Syphon in combustion chamber, adding 155 square feet (37%) to the firebox heating surface of 423 square feet.

SYPHON LOCOMOTIVES ARE BETTER



Designing Engineers Like Syphons for

MORE HEATING SURFACE

MORE CIRCULATION

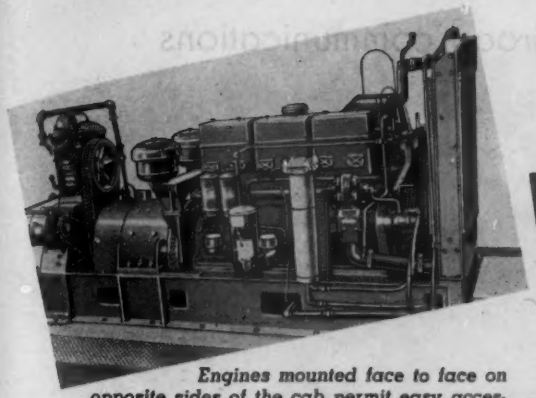
MORE BOILER HORSE POWER

SAFETY FROM BOILER EXPLOSION

23,967 Syphons used on 9,980 locomotives on 189 railroads

Locomotive Firebox Company

PHILADELPHIA CHICAGO MONTREAL

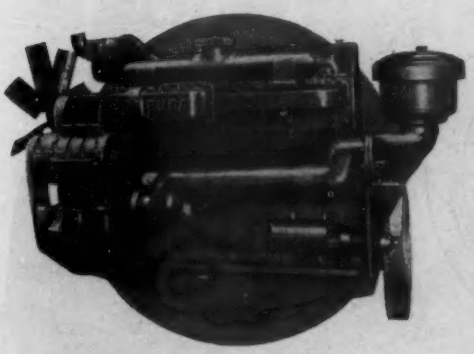


Engines mounted face to face on opposite sides of the cab permit easy accessibility for inspection and maintenance.

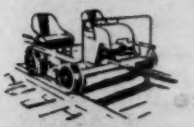
BUDA powered means ... More Net Income

Because of availability—fast acceleration—high tractive effort—low fuel costs and minor maintenance requirements, sturdy BUDA powered Diesel locomotives are getting more work done in terminals, freight centers and busy yards in less time and at lower costs, resulting in more net income.

The smooth, versatile power of BUDA Diesels, designed to meet rugged railroad requirements, are not only proving to be a match for the challenge of today's tremendous railroad problems, but are doing the job quicker and more efficiently. Write or wire for detailed information.



BUDA model 6-DCS-1879 Supercharged Diesel used in above Whitcomb locomotive.

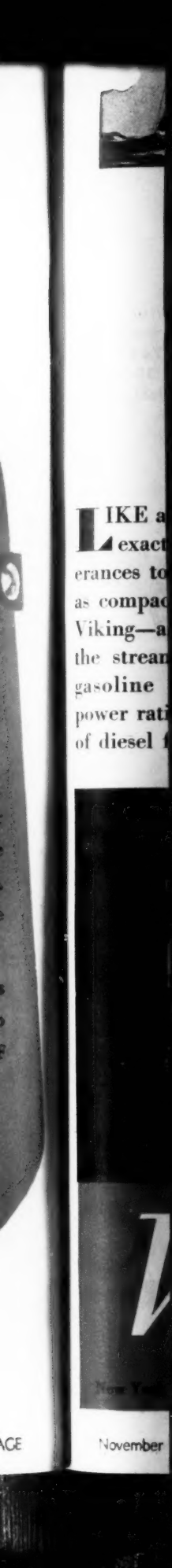


Motor Cars

Railroad Jacks

15401 Commercial Avenue
Harvey (Chicago Suburb) **Illinois**

V.H.F.
RADIO assures clear reception
—no outside or inside interference
Bendix VHF (Very High Frequency) Radio is static-free. Regardless of storms or electrical installations along the right-of-way, communication between engine and caboose is clear and of the desired volume. Moreover, communication is uninterrupted wherever the train goes because the installation is in the train itself. Thus conductor and engineer can keep in constant touch with each other. This outstanding advantage of VHF Radio has been demonstrated by experimental runs under every conceivable condition. It is stressed here because clear, uninterrupted reception is, plainly, a basic requirement in any practical, workable railroad communications system.
The factual story of the experiments proving this advantage can be obtained by writing direct to Bendix Radio—first and only source of VHF equipment for railroads.
Bendix RADIO DIVISION
BENDIX AVIATION CORPORATION, BALTIMORE 4, MARYLAND



LIKE a
exact
erances to
as compac
Viking—a
the strean
gasoline
power rati
of diesel f

November

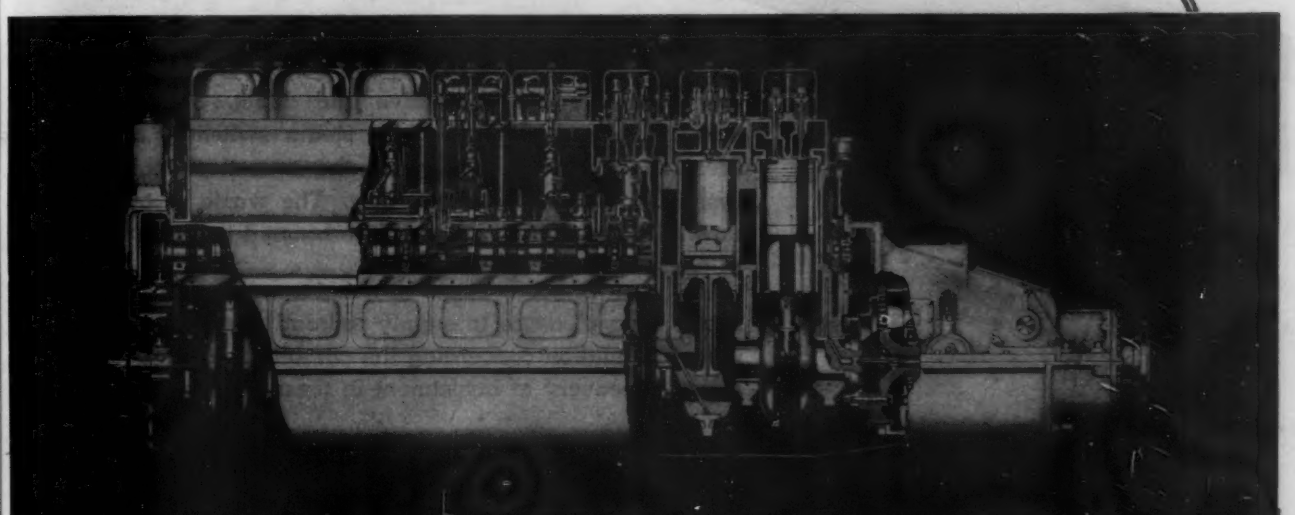
DIESELS *by Sterling*

Built with watch-like precision

LIKE a fine watch it requires exacting precision and tolerances to build a diesel engine as compact as the new Sterling Viking—an engine that gives you the streamlined efficiency of a gasoline engine of the same power rating—plus the economy of diesel fuel—an engine which is the result of fifteen years of research by a company whose name for nearly half a century has been synonymous with dependability and quality.

The Sterling Viking Diesel is ready now to replace your overworked industrial power plant or to add greater cruising range to your post-war boat. Write for complete specifications of this newest addition to a line of Sterling engines—diesel, gasoline, or gas—ranging in power from 85 hp. to 1800 hp.

"KEEP BUYING WAR BONDS"

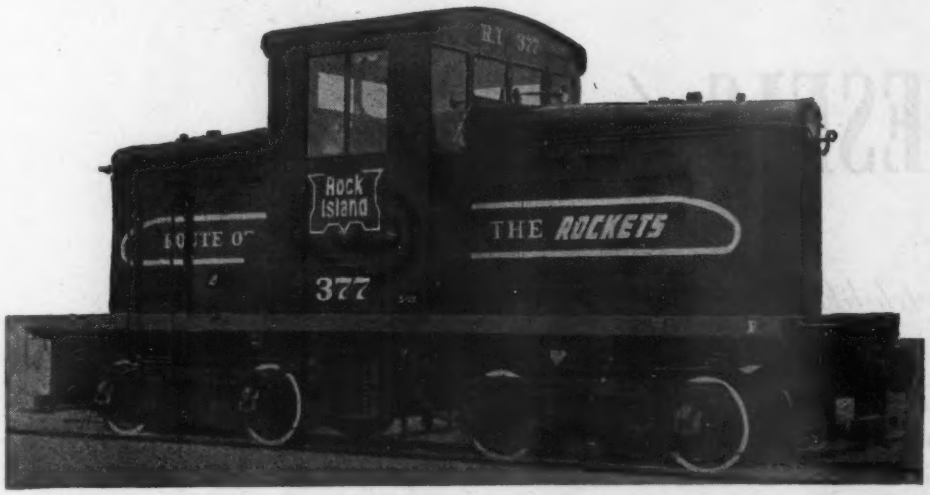


STERLING

VIKING DIESEL

STERLING ENGINE COMPANY 1277 Niagara St., Buffalo 13, N. Y.

As Rail Executives Look Ahead Into the Post-War Decades the Need for ECONOMIES Such as those Offered by Service Proven **DAVENPORT** *Lighter Diesel* **SWITCHERS** *Loom Large as Components in the Grand Strategy of Tomorrow's Railroading*



DAVENPORT Lighter Diesel SWITCHERS are available in 44-Ton Diesel-Electric and 35-Ton Diesel-Mechanical.

THE economies created by Davenport Lighter Diesel Switchers are impressive and direct. Many locations, now being served by heavier steam switchers or 100-Ton Diesel-Electrics, are a drag on the overall economy of the system of which they are a part. The waste of over-power, now tolerated, will of necessity be banned under the pressure of post-war competition.

It will be a pleasure to supply railroad executives with complete information concerning the combined savings that effect a rapid recovery of investment in these superb performers.

EXPORT OFFICE
BROWN & SITES
50 Church Street
NEW YORK
Cable Address
"BROSITES"

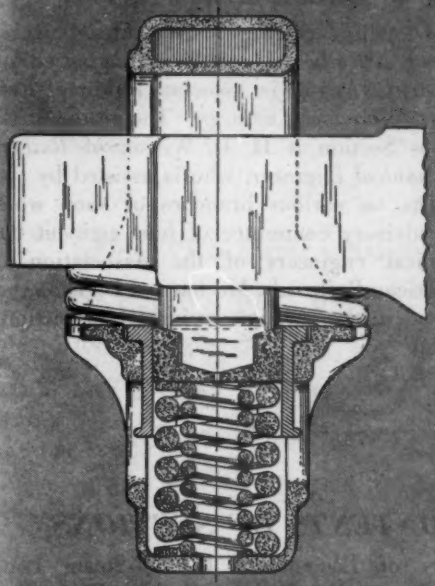
DAVENPORT LOCOMOTIVE WORKS
A DIVISION OF DAVENPORT BESLER CORPORATION
DAVENPORT, IOWA, U. S. A.

DAVENPORT

PIONEERS OF THE LIGHTER DIESEL SWITCHER

The Truck For Smooth, Safe Riding

No Spring Plank
No spring plates
Quick Wheel Change



Section thru Control Unit

A smooth riding car means less damage to lading and longer life for equipment.

The National B-1 Truck has four control units (two in each side frame) which control "spring bounce" and forces which tend to throw trucks out of square.

Cars equipped with National B-1 Trucks with Dual Control can be speeded up with Safety.

Smoother riding and Fewer Parts assure lower maintenance costs.

* * *

The truck for Post-war high-speed freight service.

National B-1 with Dual Control.

Specify National B-1 Trucks with Dual Control to keep cars "on the go"

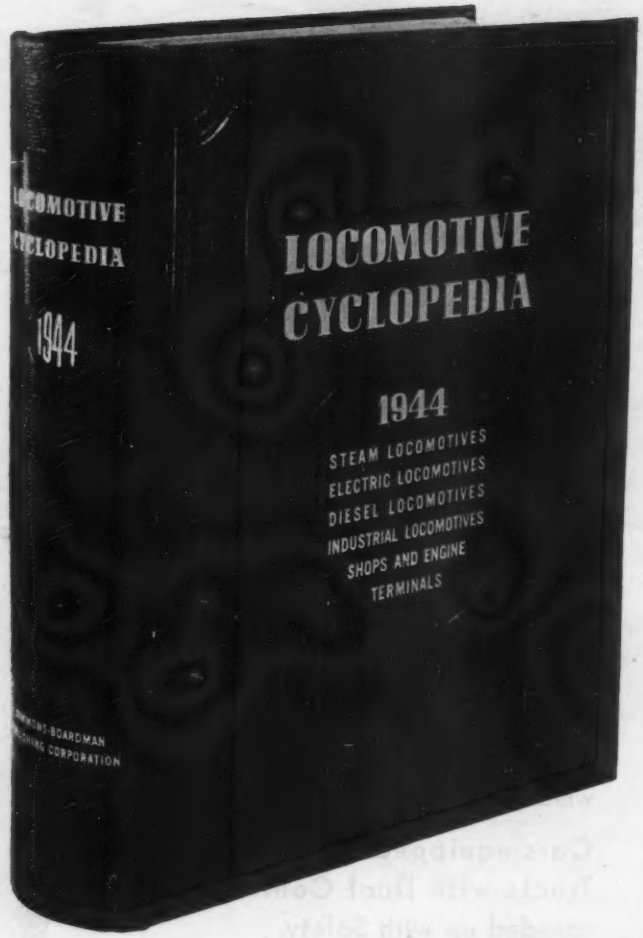
NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Announcing Twelfth Edition

LOCOMOTIVE CYCLOPEDIA



1,396 pages, 3,000 illustrations, 13 pages in full color, 9x12x13½ inches, weight 9 pounds, Fabrikoid, $5.00

The Twelfth or 1944 edition of the LOCOMOTIVE CYCLOPEDIA will be ready in December. For nearly 40 years this book has been recognized as the standard reference book on all types of American built railway motive power—steam, Diesel-electric and electric. It is on the desk or reference shelf of railway executives, mechanical department officers, purchasing agents and other key men wherever American built motive power is in use.

The new edition contains hundreds of new detail drawings and photographs of the latest locomotives and their parts. Full information is given on their various types of equipment, appliances and materials. The big Shops Section has a new chapter on Layout and Operations of Shops for the repair of steam locomotives, three new chapters on the repair of Diesel-electrics and a complete new chapter on welding. The 90 other chapters in the big book have been carefully revised and brought up to date.

Staff of Experts

The editor is Roy V. Wright, Managing Editor of *Railway Age*; the managing editor, Robert C. Augur, is Associate Editor of *Railway Mechanical Engineer*. The editor of the Shops Section is H. C. Wilcox of *Railway Mechanical Engineer*, who is assisted by specialists on various branches of shop work. An advisory committee of four eminent mechanical engineers of the Association of American Railroads, Mechanical Division, has helped in the revision of important sections.

●

FREE EXAMINATION COUPON

Simmons-Boardman Publishing Corporation
30 Church Street, New York 7, N. Y.

When ready, send me postpaid a copy of the new Twelfth Edition of the LOCOMOTIVE CYCLOPEDIA, on Ten Days' Free Examination. If satisfactory I will remit the list price of $5.00. Otherwise I will return the book without obligation.

Name .....

Address .....

City ..... State .....

Company ..... Position .....

(This offer is limited to retail purchasers in the United States and Canada.)

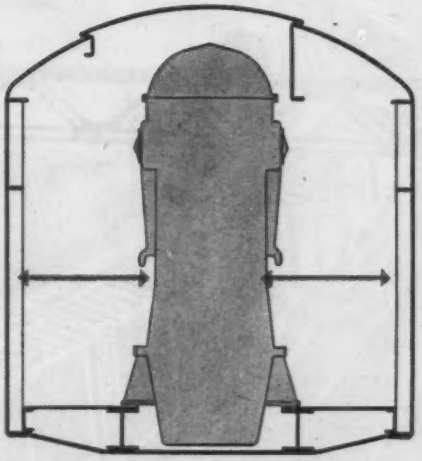
R.A. 11-25-44

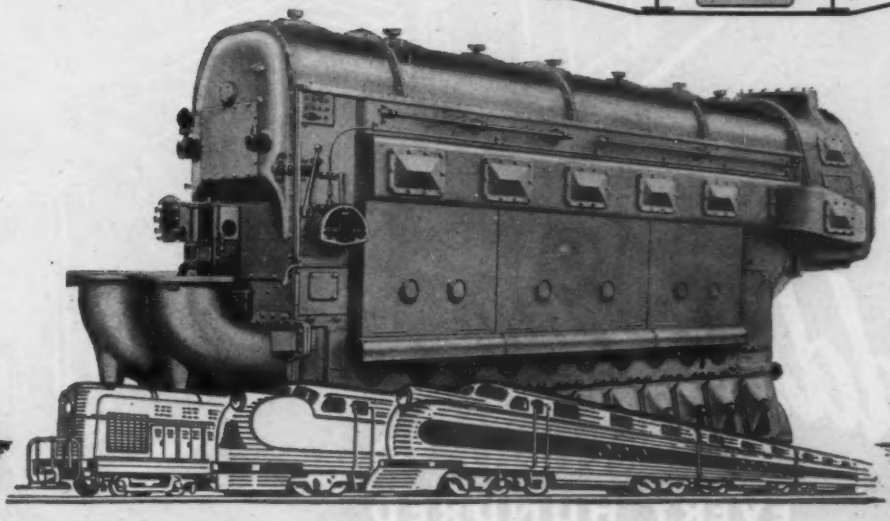
CONTENTS OF SECTIONS

Dictionary of Locomotive Terms—Steam Locomotives—Locomotive Boilers—Boilers; Water Supply—Boilers; Fuel Supply—Cabs; Fittings; Boiler Mountings—Engine; Cylinders and Driving Gear—Foundations and Running Gear—Lubrication—Couplers and Draft Gears—Brakes and Brake Gear—Locomotive Tenders—Safety Appliances—Electric Locomotives—Diesel Locomotives—Industrial Locomotives — Export Locomotives — Locomotive Materials and Supplies—Locomotive Inspection, Tests and Operation—Shops and Engine Terminals—Indexes.

More Inspection Space in Fairbanks-Morse

LOCOMOTIVES





OPERATORS and maintenance men like adequate passageways and working space in Diesel locomotives. They find this roominess in Fairbanks-Morse Locomotives, because the Opposed-Piston Diesel leaves generous space on each side. And with all its compactness, this Diesel delivers a *full 2000 horsepower* to the generator.

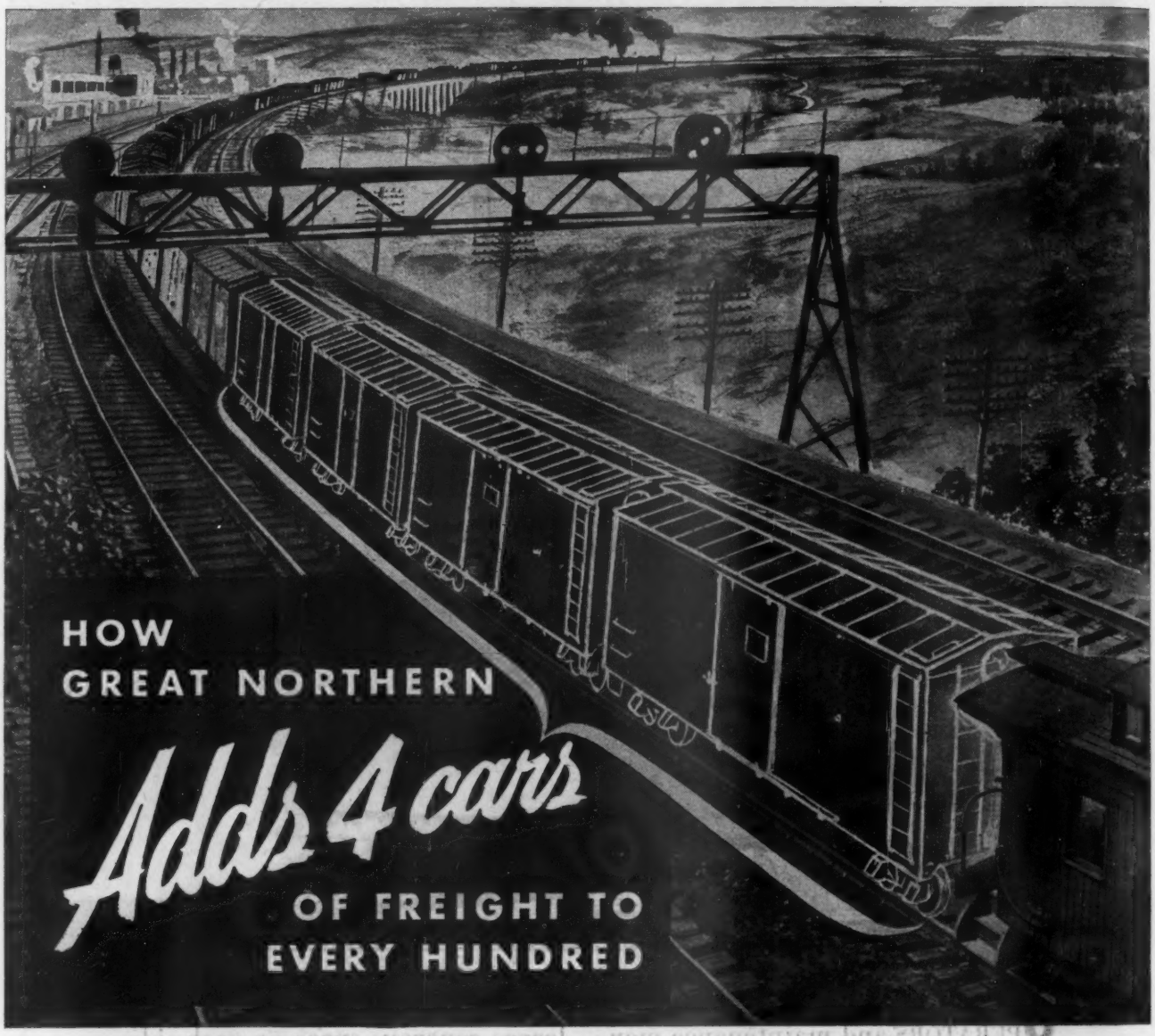
Fairbanks, Morse & Co., Fairbanks-Morse Bldg., Chicago 5, Ill.

Buy More War Bonds

A name worth remembering!

FAIRBANKS-MORSE

© 1944. Fairbanks, Morse & Co.



Cars that weigh two tons less than average . . . that's the saving Great Northern Railway obtains by the use of plywood.

Thus, in a 100-car train, they save 200 tons of deadweight . . . roughly equivalent to the capacity of four 50-ton box cars.

In other words, Great Northern gets an extra dividend of 4% in payload when they invest in plywood cars.

Doesn't their experience suggest an opportunity for *you?*

With plywood, you can haul more freight per car. Or . . . when handling bulky cargo . . . more cars per train.

There is an added advantage in the plywood lining. For the greater payload is delivered in better condition . . . cleaner condition.

And plywood is versatile, too. Structural features are as beneficial to deluxe club-cars, diners or coaches as to box cars or reefers. For decorative beauty, nothing is superior to the rich walnut, oak, mahogany and other fine woods available in Weldwood Hardwood Plywoods.

Plywood can help you build a better car in the near post-war future. Better structurally. Better decoratively.

It will pay you to investigate the possibilities. Write for complete information.

Plastics and Wood Welded for Good

Waterproof Weldwood, so marked, is bonded with phenol formaldehyde synthetic resin. Other types of water-resistant Weldwood are manufactured with extended urea resins and other approved bonding agents. Back of these Weldwood Products are unmatched facilities and experience in Plywood production and fabrication. Available also are the services of qualified engineers, chemists and wood technologists.

WELDWOOD Plywood

Weldwood Plywood and Plywood Products are manufactured and marketed by

UNITED STATES PLYWOOD CORPORATION

New York, N. Y.

Distributing units in Boston, Brooklyn, Chicago, Cincinnati, Cleveland, Detroit, High Point, Los Angeles, Newark, New York, Oakland, Philadelphia, Rochester, San Francisco, Seattle. Also U.S.-Mengel Plywoods, Inc., distributing units at Atlanta, Jacksonville, Louisville, New Orleans. Send inquiries to nearest point.

VITAL PARTS OF YOUR EQUIPMENT-REPAIR PROGRAM

When your freight car repair program is under consideration, you can be certain that Schaefer Service will meet your delivery requirements.

Schaefer Light Weight Design Insures More Than Car Life

Schaefer EQUIPMENT COMPANY

KOPPERS BUILDING PITTSBURGH, PA.

DROP-FORGED FOR LIGHT WEIGHT, HIGH STRENGTH, LONG LIFE AND SAFETY

HAIRINSUL is Better Insulation

Washing of cars is harmless to the insulation if it's HAIRINSUL

because

WATER NEVER HURTS IT!

HAIR IS NATURE'S OWN INSULATION
It's nature's protective covering for animal life . . . it's a barrier against extreme outside temperature changes. HAIRINSUL is made of animal hair . . . one of the best reasons why HAIRINSUL is accepted as the finest of all insulating materials for refrigerator cars.

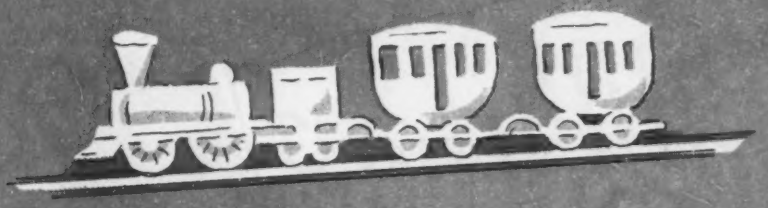
You won't have to worry about accidental leaks, even a flood, if your refrigerator cars are lined with HAIRINSUL, because this superior HAIR FELT insulating material dries out good-as-new . . . never rots, never deteriorates, always keeps its original efficiency.

HAIRINSUL is a permanent investment. It never packs down, never forms ice-wasting gaps that need repacking. It's a continuous all-hair blanket that can be used time and again as older cars wear out. Easy and economical to install . . . and best of all, it's available now! Write today for samples and complete engineering data.

AMERICAN HAIR & FELT COMPANY
MERCHANDISE MART • CHICAGO 54

Hairinsul

ALL HAIR INSULATION FOR REFRIGERATOR CARS

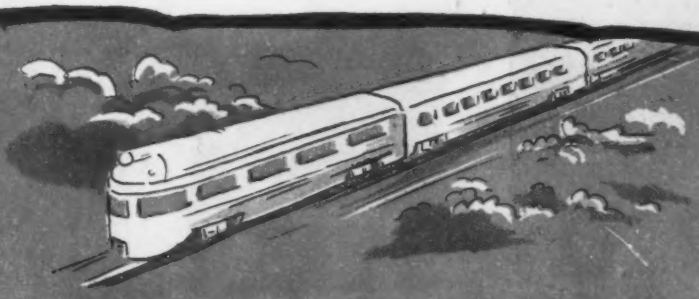


FROM A SINGLE SOURCE OF SUPPLY . . . L. C. CHASE & CO. . . . American railroads can obtain a complete line of transportation fabrics for tomorrow's new and modernized rolling stock. No other supplier can offer the same undivided responsibility . . . the same scope of service . . . the same 76 year record of quality.

The accompanying reprint of our current advertisement appearing in the November issue of the magazine FORTUNE visualizes the scope of Chase Fabric applications in tomorrow's passenger train equipment.

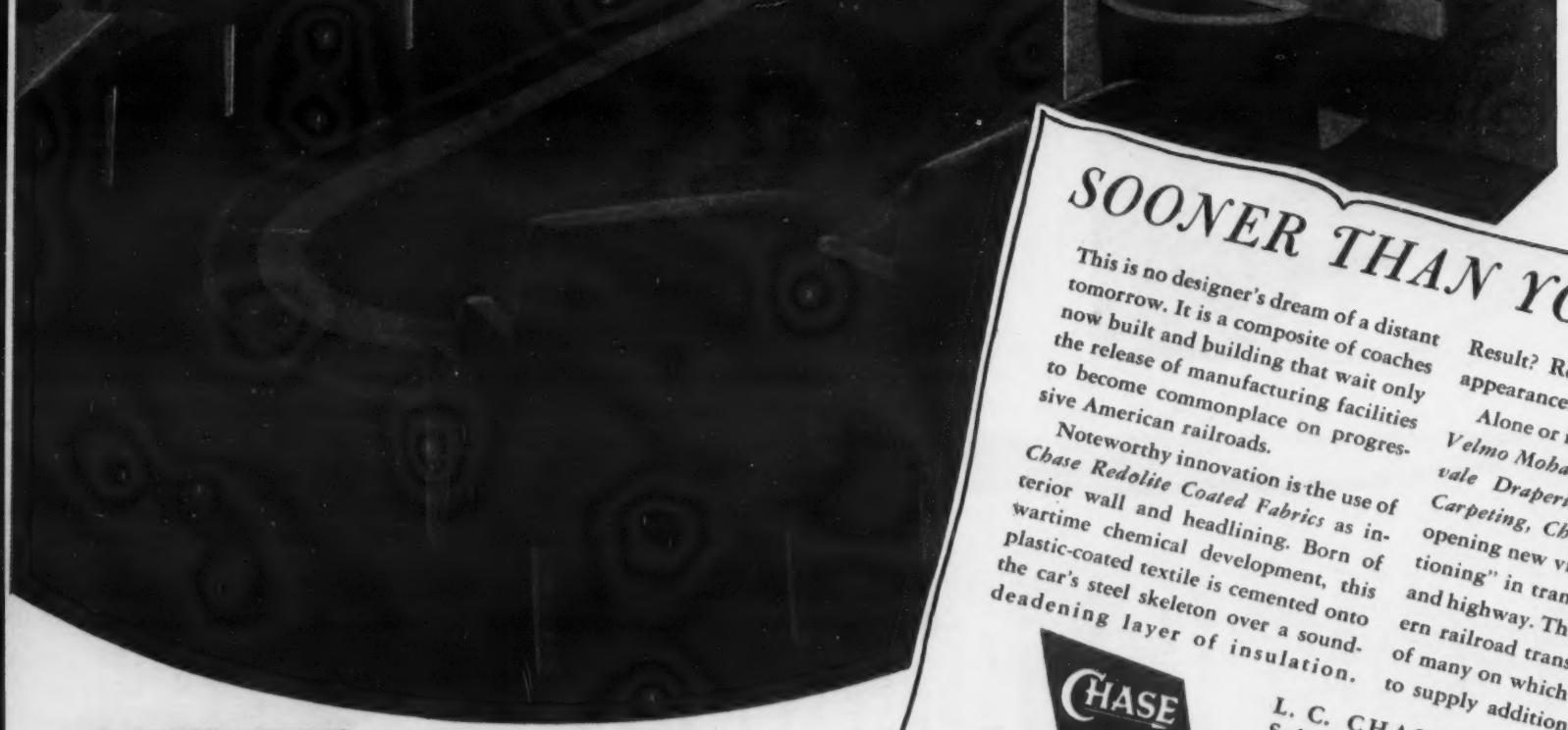
While you may or may not agree with every detail of this design, we trust it will interest you in broader applications of Chase Fabrics in your post-war passenger cars. Transportation fabrics of every type will continue to get the same attention in our mills as they have received all during these difficult wartime days.

Your comments will be deeply appreciated.



CHASE TRANSPORTATION FABRICS

CHASE VELMO MOHAIR UPHOLSTERY
CHASE COATED FABRICS • CHASE SEAMLOC
CARPET • CHASE SANVALE DRAPERIES



SOONER THAN YOU THINK!

This is no designer's dream of a distant tomorrow. It is a composite of coaches now built and building that wait only the release of manufacturing facilities to become commonplace on progressive American railroads.

Noteworthy innovation is the use of *Chase Redolite Coated Fabrics* as interior wall and headlining. Born of wartime chemical development, this plastic-coated textile is cemented onto the car's steel skeleton over a sound-deadening layer of insulation.

Result? Restful comfort. Streamlined appearance. Reduced maintenance.

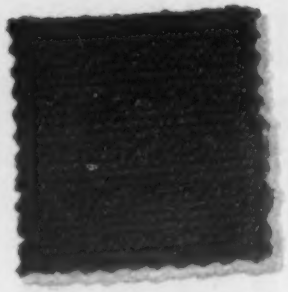
Alone or in combination with *Chase Velmo Mohair Upholstery, Chase Sanvale Draperies* and *Chase Seamloc Carpeting, Chase Coated Fabrics* are opening new vistas of "comfort conditioning" in transportation by air, rail and highway. This application in modern railroad transportation is but one of many on which we shall be pleased to supply additional information.

CHASE

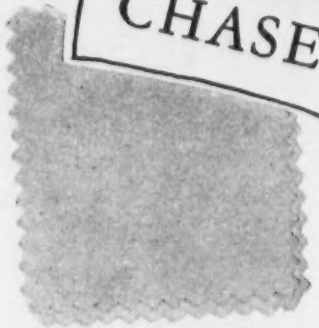
L. C. CHASE AND COMPANY
Sales Division of Sanford Mills
295 Fifth Avenue, New York 16, N. Y.
Boston • Detroit • Chicago • Los Angeles

CHASE COATED FABRICS

FLOOR COVERING: *Chase Seamloc Carpeting* in Modern Blue . . . deep and densely-piled . . . favored for its long life under heavy traffic in hotel corridors and public spaces, dining rooms and movie-theatre lobbies. Ingenious "inlay" feature permits interesting color combinations and decorative accents.



ON COACH SECTION SEATS: Super Needlepoint *Chase Velmo Mohair Upholstery* . . . "standard equipment" on most American railroads, thousands of Pullman cars, motor coaches, transport planes, theatre seats and on fine furniture.



WALL AND HEADLINING: *Chase Redolite Coated Fabric* . . . a vinyl-resin, ungrained coated textile. Surprisingly resistant to scuffing, Redolite is fire-resistant, light, extremely easy to apply and replace without taking equipment out of service.

ON LOUNGE-SECTION CHAIRS: Horizon Blue *Chase Coated Fabric* provides cheerful utility that makes it popular on home and outdoor furniture.

BAR AND BANQUETTE: Pigskin *Chase Redolite Coated Fabric.*

Official U. S. Marine Corps Photo

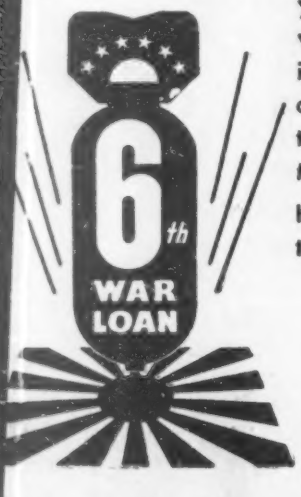
Keep Your Plant's Quota "OUT FRONT!"

Victory depends upon materials—as well as men! To keep our American forces "closing in" overseas, you and every other manufacturer here at home must *keep on making* "Out Front" War Bond Quotas!

This means *action now* on *every* point in the fighting 8-Point Plan to step up Payroll Deductions. For instance, have you a 6th War Loan Bond Committee, representing labor, management and other important groups in your company? Selected Team Captains yet—preferably returned veterans? If so, have you instructed them in sales procedure—and given each the Treasury Booklet, *Getting the Order?*

How about War Bond quotas? Each department—and individual—should have one! Assigning responsibilities is vital, too! Have you appointed enough "self-starters" to arrange rallies, competitive progress boards and meeting schedules? Are personal pledge, order or authorization cards printed, and made out in the name of each worker? Planning for resolicitation near the end of the drive? Your State Payroll Chairman is ready now with a detailed Resolicitation Plan. And, have you contracted for space in *all* your regular advertising media to tell the War Bond story?

Your positive *Yes* to *all* points in this forward-to-victory 8-Point Plan assures your plant meeting an "Out Front" Quota in the 6th War Loan—and speeds the day of unconditional surrender!



The Treasury Department acknowledges with appreciation the publication of this message by

RAILWAY AGE

This is an official U. S. Treasury advertisement—prepared under the auspices of Treasury Department and War Advertising Council.

Motorola
3-Way Radiotelephone gives you . . .

Illustration Courtesy of Association of American Railroads

Instant Control
OF ALL SWITCHING MOVEMENTS

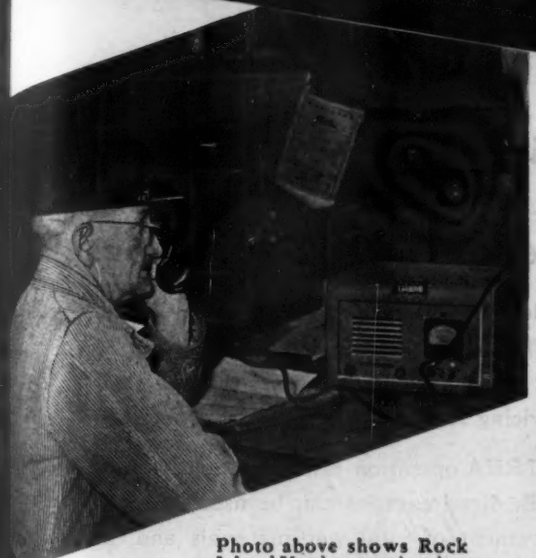


Photo above shows Rock Island Yardmaster issuing orders from his office to the switching crew speeding down the track, 20 miles away.

YOUR yardmaster or train dispatcher from his yard office is in instant touch with the switching crews and they with him or each other through a Motorola F-M Radiotelephone System. This results in the safe, speedy control of switching operations that modern railroading demands.

ANOTHER MOTOROLA RADIO FIRST

The Radiotelephone System installed by the Rock Island Lines in their Blue Island Yards is a notable Motorola Radio first. The "Handie Talkie", a small portable, battery-operated, two-way radio used by front-line troops on every fighting front, is also another Motorola Radio first. It will be available for fire, police or railway usage as soon as our obligation to the armed forces have been fully discharged.

For complete details on a Motorola Radiotelephone System for YOUR railroad, write to:

GALVIN MFG. CORPORATION · CHICAGO 51

225,000 BARRELS

through the
ST. LOUIS GATEWAY

Alco-G.E. diesel-electrics help Terminal Railroad Association reduce operating costs 38% in 1943, compared with steamers. Interchange time of tankers slashed to 3¾ hours!

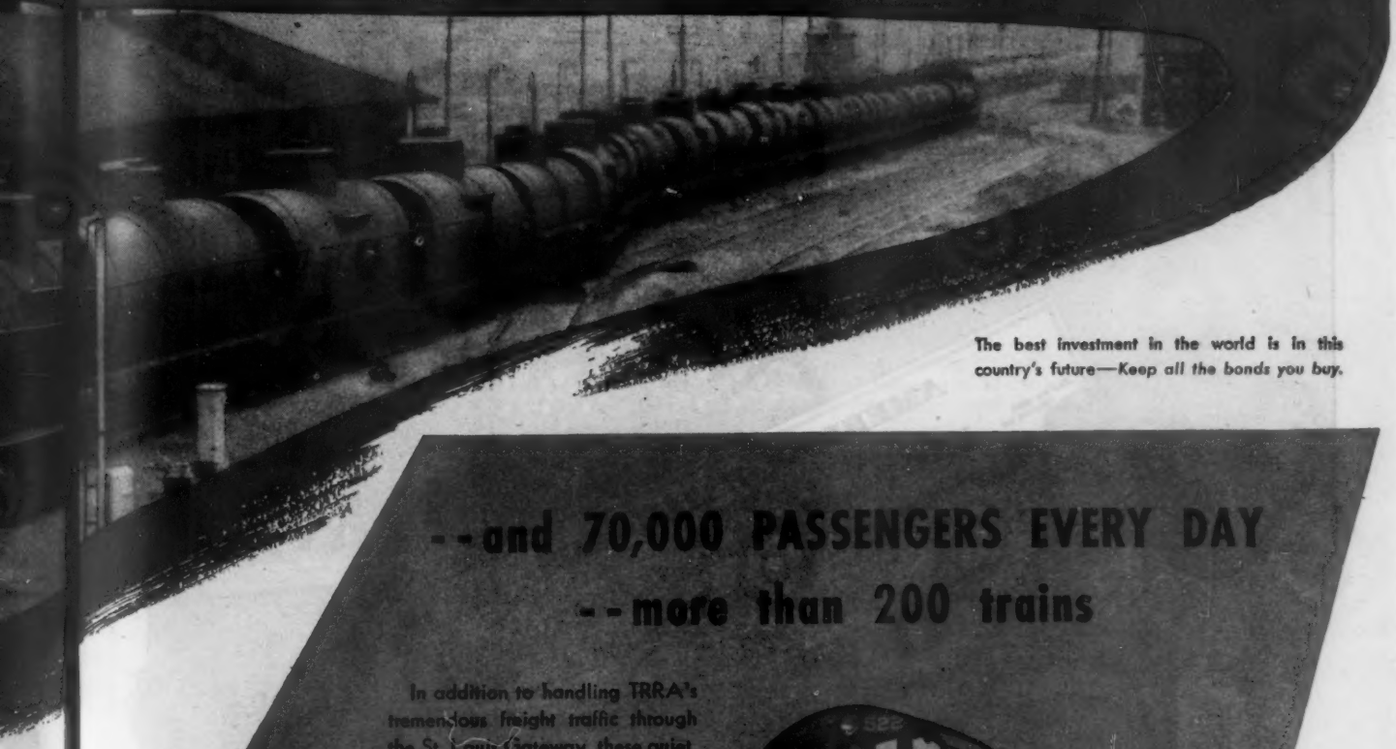
ONE-THIRD of all eastern seaboard oil is moving through the St. Louis Gateway in a fraction of the time formerly required. Tankers are now interchanged in only three-and-three-quarters hours. This is the result of TRRA's efficient terminal operation—supported by 12 Alco-G.E. diesel-electrics.

Because they are available 95 per-cent of the time, these diesel-electrics permit the TRRA to set up its switching operations in advance of each train's arrival. Their quick response to the throttle and high initial tractive effort are particularly time-saving when long strings of cars must be moved.

In addition to speeding up terminal operations, these diesel-electrics are producing a 38 per-cent saving in operating cost through their low servicing requirements and fuel economies.

The TRRA operation is an example of how Alco-G.E. diesel-electrics can be used to speed the movement of vital war materials and, at the same time, effect important operating economies. We'd like to discuss their application on *your* lines. We build all three types of motive power—diesel-electric, electric, and steam—and can therefore impartially recommend the one which is economically best suited to your particular operation.

OF OIL EVERY DAY--



The best investment in the world is in this country's future—Keep all the bonds you buy.

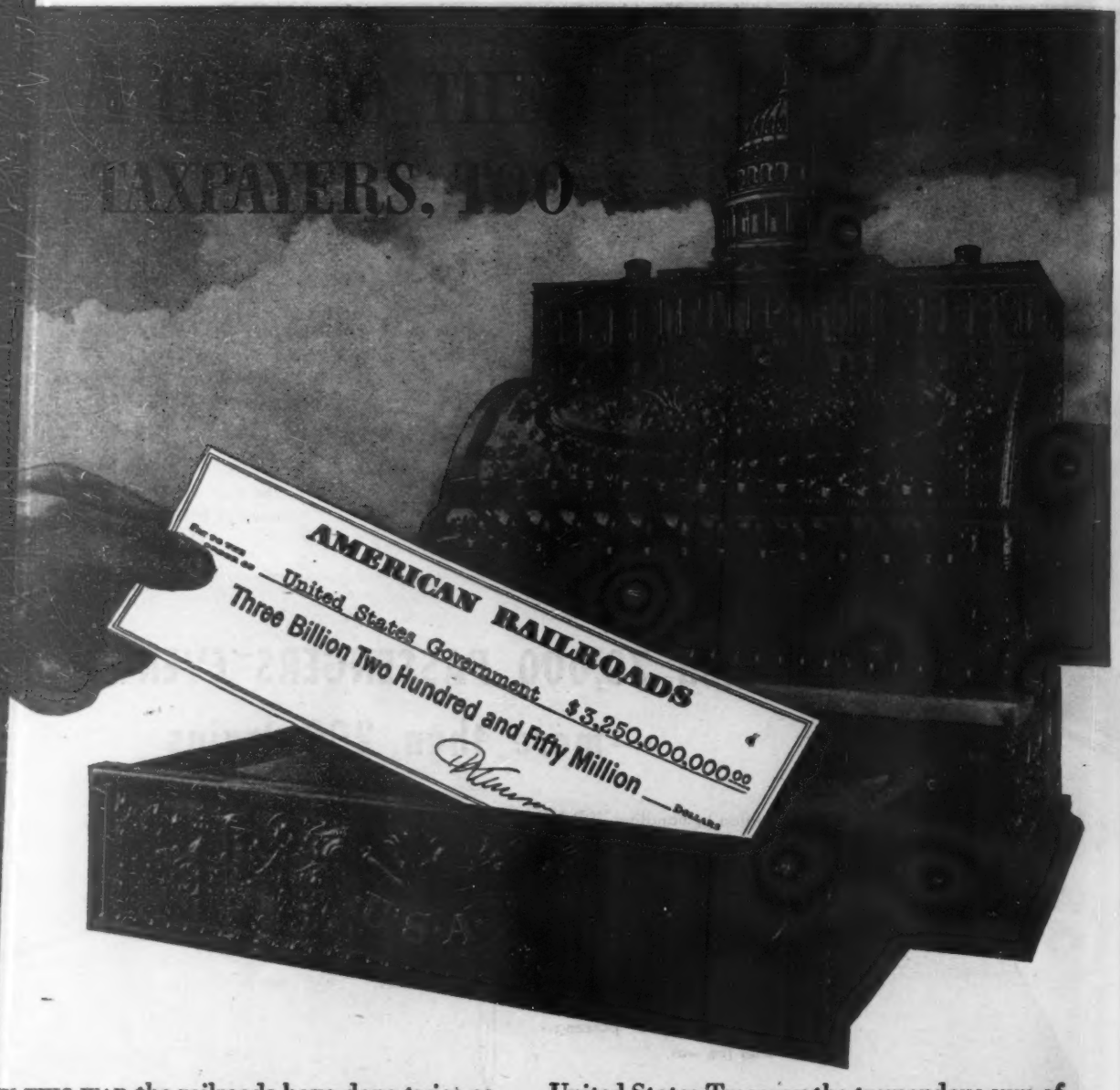
--and 70,000 PASSENGERS EVERY DAY --more than 200 trains

In addition to handling TRRA's tremendous freight traffic through the St. Louis Gateway, these quiet, clean diesel-electrics switch more than 200 passenger trains daily. The elimination of cinders, soot, and disturbing noise is leaving a favorable impression that will be reflected in increased passenger traffic after the war.

Making up a train in TRRA's Madison yard. Two units coupled together operate as a 2000-hp locomotive to handle the long heavy cuts.

Alco DIESEL-ELECTRIC

AMERICAN LOCOMOTIVE and GENERAL ELECTRIC



IN THIS WAR the railroads have done twice as big a transportation job as in the first World War.

But they are doing another job which may not be so well known, as is shown by these contrasting facts:

In the last war, the operation of the railroads took money out of the United States Treasury.

In this one, the railroads are putting money into the Treasury.

In the last war, when the Government took over the railroads, even though freight rates and passenger fares were raised, Congress had to appropriate more than $1,600,000,000 to meet deficits.

In this war, the railroads have been managed by their owners. A far bigger and better transportation job has been done. And, since Pearl Harbor, the railroads have turned into the United States Treasury the tremendous sum of $3,250,000,000 in taxes—and today are paying federal taxes at the rate of nearly $4,250,000 every 24 hours.

And, on top of all this, the railroads in the same months since Pearl Harbor have paid for the support of state, county and city governments another $750,000,000 and are today paying state and local taxes at the rate of $800,000 per day.

That's five million dollars a day paid in taxes—ten times as much as the owners receive in dividends.

Send Christmas Gifts before Dec. 15

ASSOCIATION OF AMERICAN RAILROADS

ALL UNITED FOR VICTORY

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered in U. S. Patent Office.

Vol. 117 November 25, 1944 No. 22

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y. AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING, CLEVELAND 13: TERMINAL TOWER SEATTLE 1: 1033 HENRY BUILDING, SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES 14: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN. HENRY LEE, PRESIDENT, ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY. F. H. THOMPSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, H. E. McCANDLESS, VICE-PRESIDENTS. J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR, ROY V. WRIGHT, MANAGING EDITOR. JAMES G. LYNE, ASS'T. TO EDITOR. CHARLES LAYNG, WESTERN EDITOR. C. B. PECK. ALFRED G. OEHLER. E. L. WOODWARD. J. H. DUNN. R. A. DOSTER. H. C. WILCOX. NEAL D. HOWARD. GEORGE E. BOYD. WALTER J. TAFT. M. H. DICK. JOHN S. VREELAND. C. MILES BURPEE. ARTHUR J. McGINNIS. J. L. STOVER. C. B. TAVENNER. H. E. MEASON. LIBRARIAN: EDITH C. STONE. EDITORIAL ASSISTANT: BETTY KETCHUM.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.).

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR $6.00; 2 YEARS, $10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, $8.00; 2 YEARS, $14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK 7.

In This Issue

Page

U. S. Railway Men in Novel Role ***807***

An unofficial report of the work of the United States Railway Mission in rehabilitating the railways of Mexico and increasing their capacity with the aid of American technicians and materials

A Look at the Coming Locomotive ***810***

Ralph K. Johnson, chief engineer of the Baldwin Locomotive Works, in this article explains that availability (the opportunity to amortize capital charges more quickly) should be the main aim of designers in the post-war years, not thermal efficiency alone

N. I. T. League Annual Meeting ***813***

Herein is reported the refusal of this group to endorse user charges for inland waterways or uniform I. C. C. regulation of all carriers. Its decision to head a movement for a memorial to the late Mr. Eastman was also announced at this session

EDITORIALS

The Problem of Employment 803
Labor Relations — a Common Meeting Ground 804
Car Officers Should Speak Up 805
Opinion Surveys — How Reliable and How Useful? 806
Progress in Advertising 806

GENERAL ARTICLES

U. S. Railway Men in Novel Role, by Elmer T. Howson 807
A Look at the Coming Locomotive, by Ralph K. Johnson 810
N. I. T. League Annual Meeting 813
Why Railroads' Health Is Public's Concern, by E. E. Norris 815
Rio Grande Has Longest C. T. C. 816
Victory and Materials' Control, by S. W. Anderson 819
Property Taxes Need Closer Scrutiny, by John W. Barnes 821

NEW BOOK **822**

RAILROADS-IN-WAR NEWS **823**

GENERAL NEWS **826**

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

★

PRINTED IN U. S. A.

T. C. cuts the RED TAPE of Train Dispatching

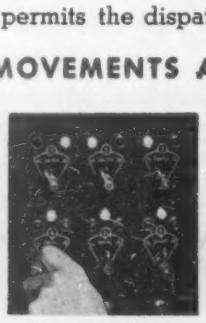
DER present conditions of tremendously increased traffic, many dispatchers directing under older systems of train operation are y handicapped in their efforts to "keep them ."

ontrast, C.T.C. provides a speedy and simple l for the dispatcher to authorize train movesby signal indications. This eliminates the red f issuing, transmitting and delivering written rders, and permits the dispatcher to confine his attentions to the actual planning of train movements. Information as to the location of all trains in his territory is available without delays in transmission and the dispatcher has only to operate the control levers to make his instructions instantly effective in the field.

On some of the major C.T.C installations, locomotives have been relieved for duty on other divisions through the reduction of road time of trains operating under this modern method of train operation.

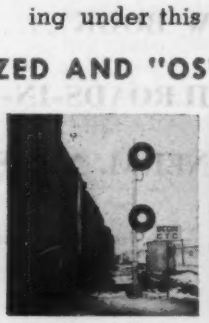
TRAIN MOVEMENTS ARE AUTHORIZED AND "OS"ed WITH "UNION" C. T. C.

es switch lever c normal



Clears signal lever

Switch operates and signal clears



Train enters "OS" track section

"OS"es on track model

"OS" records on train graph

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

303

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

The Week at a Glance

NITL SMILES ON SOCIALISM: By the action of its executive committee in pigeon-holing a recommendation by its able and hard-working special (Braden) committee on transportation policy, that tolls be collected from users of improved waterways, the National Industrial Traffic League has let it be known that it does not object to socialized competition with private enterprise—under conditions of extreme favoritism to further socialistic encroachment. Another recommendation of the special committee, looking to some ordering of the chaos in transportation—by bringing each agency under a common regulatory authority (rather than leaving each to a separate bureau of its own fans)—was turned down by the N. I. T. membership on motion from the floor. The report of the League's meeting, in this issue, evidences plenty of statesmanship on the part of some of the League's leaders, whatever one may think of the economic morality and insight of the rank and file, as revealed by its voting.

●

NOT WHOLLY NEGATIVE: On questions not afflicting the pocketbook nerve of individual members, the League majority found it easier to be loyal to enterprise principles and, accordingly, endorsed some of the wholesome recommendations of the Braden committee. Thus, it favored ownership by one type of transport of agencies of another type (with rather severe limitations, however); deductions by the railroads of maintenance reserves from taxable income; and repeal of land-grant rates. The Justice Department was asked to call off the Lincoln lawsuit by which it is endeavoring to put a stop to the co-operative efforts of the railroads which are enabling them to handle the war traffic burden.

●

THOSE 60,000,000 JOBS: If Mr. Roosevelt is to make good his pre-election promise of "60,000,000 jobs" under a regime of private enterprise, he will have to pursue policies radically different from those he instituted during the pre-war years of his reign. An editorial herein shows that in the 1900-09 decade, about 97 per cent of the nation's labor force was employed; in 1910-19, 99 per cent; in 1920-29, more than 96 per cent; while in the decade of the '30's, largely presided over by Franklin D. Roosevelt, the employment ratio fell to less than 84 per cent. Neither the President nor his dominant associates have indicated their understanding that free enterprise cannot flourish in providing employment without an opportunity to earn profits which will induce large-scale investment—nor that the only alternative to such steps to permit large employment in free enterprise is socialistic fascism. There is no "middle way," as is often deceptively contended, especially by business men who favor toll-free superhighways, canals, and airports.

●

KNOWING WHAT THEY THINK: A management which has a large structure—say a bridge—fail it in service is usually looked upon critically, because one of management's first responsibilities is to predict the predictable, and to take the requisite precautions. With the scientific testing of public opinion from small samples having demonstrated its near-perfection in the recent election, an industry which henceforth finds itself in a hot spot of adverse political agitation offers a pretty close parallel to an erecting organization whose job collapses on completion. Difficulties arising from misunderstanding of an industry by the public (or of management's mistakes in assaying public opinion through intuition) can be detected and corrected at the incipient stage by this newly-perfected process. An editorial herein suggests that, before long, a bad public relations situation, often heretofore looked upon primarily as bad luck, may before long be judged as evidence of neglect or incompetence.

●

THE EVOLVING LOCOMOTIVE: Critics of the 6 to 8 per cent thermal efficiency attained by steam locomotives put technological goals before the economic, which a practical locomotive designer cannot do—such is the rejoinder to this school of comment by Baldwin's Chief Engineer, Ralph Johnson, in a paper published herein. If 25 per cent thermal efficiency is obtainable within the space and weight limits of a locomotive, the author asks, then why do the utilities take up whole city blocks to accommodate the devices by which they achieve their efficiency? Availability—which means the rapid amortization of capital charges—is the designer's principal goal, and Mr. Johnson believes that much of this characteristic attributed to the Diesel could be obtained with steam power, if equal servicing facilities were provided.

●

BERGE STICKS TO SMEAR: Donald Conn of the Transportation Association is having no success in getting Buster Berge of the Justice Department to retract or authenticate his charge that the railroads are seeking "a complete transportation monopoly" by the development of "regional integrated transportation systems." The Berge-Conn interchange is reported in our news pages. Buster answers Conn's questions like Charlie McCarthy does Bergen's, that is, by talking loudly about other things. We wish Mr. Conn luck in his efforts to deal with Mr. Berge on the level of straight facts and honest logic, but Buster hasn't yet shown any special hankering for this kind of a contest. He chose his tools when he started the fight, and those who use gentler weapons with him are accepting a heavy handicap.

●

PROPERTY TAX DANGERS: The magnitude of federal profits taxes may have induced the railroads to neglect, somewhat, their attention to state *ad valorem* taxes—which normally constitute the larger share of total taxes. An expert in this field has a thoughtful article on page 821 herein in which he sets forth why property tax rates are likely to rise after the war; and also that these taxes are often inequitably applied to the railroads, especially when compared to the levies exacted from rival agencies of transportation. The author believes that the public welfare calls for greater critical attention to *ad valorem* taxation than it is now receiving.

STEEL FOR 1945: The W. P. B. has made its allocation of steel for the transportation industry for the first quarter of 1945—the assignment being about 1¼ million tons of carbon steel, or some 20 per cent less than the O. D. T. asked for. An allocation is made for the construction of 2,300 box cars, contingent on the railroads' ordering them before December 1.

●

LONGEST C. T. C.: The Denver & Rio Grande Western now has the longest continuous stretch of C. T. C. to be found anywhere on the continent. As an illustrated article herein reveals, the road has this train-expediting device in operation all the way from Dotsero, where its two eastern lines converge, westward to Helper (284 miles), where double track begins. It would be tough going, trying to handle the dozen daily passenger trains and almost twice that number of freight trains in this difficult territory without C. T. C.'s help.

●

AIDING MEXICO'S RAILWAYS: In order to improve war-needed trade with our neighbor to the south, the American government late in '42 arranged to extend help—through a "mission" of American railroaders—in rehabilitating the physical condition of the Mexican railways. Some of the plans and accomplishments of this practical application of the "good neighbor" policy are set forth in an article herein.

●

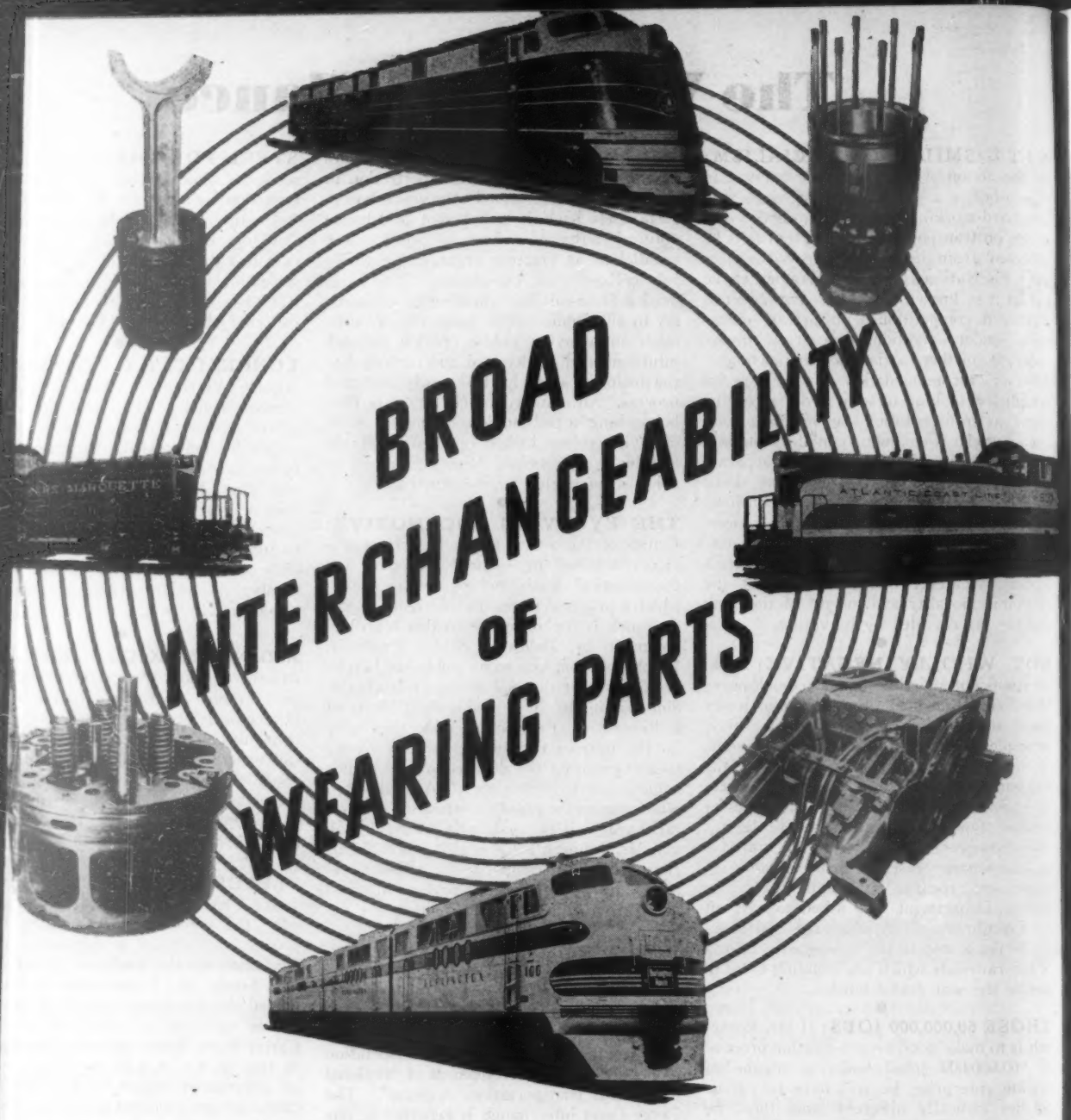
FLETCHER RESEARCH CHIEF: Judge Fletcher, who initiated and presides over the comprehensive inquiry into all phases of railroad problems—now being conducted by the Railroad Committee for the Study of Transportation—has been named vice-president-research of the A.A.R. He is succeeded as vice-president-law by Carter Fort. These and other developments at last week's A.A.R. meeting (including an informative report by the Car Service Division) are reported in our news pages.

●

MINIMUM WAGES: The eminent and vocal New Dealer from Florida, Senator Pepper, has a bill which would anathematize any wage less than 65 cents per hour as "substandard," giving the War Labor Board an excuse for shoo-flying the "Little Steel formula" to elevate such pay. As a news report in these pages reveals, the railroads are opposing this proposal—as calculated to increase unemployment, and also as leading to demands for more money in the higher brackets; while the railway union chiefs are equally opposed to the 65-cent floor as being too low.

●

"LABOR'S" GOP PAL: The chief claim to fame of Senator Aiken of Vermont is his persistent advocacy of the St. Lawrence Seaway, a principal purpose of which is to deprive railroads of traffic and railroad employees of their jobs. The publication "Labor" in its November 18 issue hails Aiken as a "progressive" and exults at his re-election "with the backing of the rail labor organizations." A politician seldom disqualifies as a "friend of labor" by seeking to put employers out of business.



ndardization Keeps Availability High and Maintenance Low

IGH AVAILABILITY and low maintenance cost of General Motors Diesel locomotives lt, in part, from the high interchangeability earing parts. This standardization, which is ied out to the highest degree commensurate insurance of exceptional performance of the ous types of locomotives on their particular jobs, makes for quicker, low cost replacement of parts and the further economies that go with minimum parts inventories . . . For example, pistons, liners, traction motors, cylinder heads and most bearings are interchangeable in General Motors switching, passenger and freight locomotives. Many other parts are interchangeable within the various types.

★ ON TO FINAL VICTORY — GENERAL MOTORS LOCOMOTIVES — BUY MORE WAR BONDS ★

ELECTRO-MOTIVE DIVISION
NERAL MOTORS CORPORATION — LA GRANGE, ILLINOIS, U.S.A.

The Problem of Employment

It is much easier to estimate what the recent election meant than to estimate what its effects will be. President Roosevelt won because many believed in his domestic policies, and there were enough in addition who preferred not to change our leadership in conducting the war and making the peace. Virtually all who voted against him were opposed to his domestic policies, and they were 47 per cent of the total, his majority being the smallest received by any successful candidate in 28 years. Many who supported him would have voted against him if confronted only with domestic political and economic issues.

The faster the war draws to a close the sooner President and Congress will have squarely to face these domestic issues. Spokesmen of both parties promised "full employment" and an unprecedentedly large peace-time national income. Such promises are easy to make, but difficult to fulfill. Whatever government policies are adopted, private enterprise will have to provide a vast majority of the jobs. Therefore, the effects of government policies on business will determine total employment much more than the number of jobs provided by government itself.

Efficiency FOR VICTORY

The natural inference from what New Dealers say would be that the unemployment which existed during the depression before Mr. Roosevelt came to power had been chronic for decades before, and that only New Deal policies caused as much employment as was provided from 1933 to the beginning of World War II. Nothing could less resemble the facts. In the ten years 1900-1909, inclusive, the nation's available labor force averaged 33,230,000 and its employment 32,123,000, or 96.7 per cent of its labor force. In the ten years 1910-1919, inclusive, which included the World War I period, its labor force averaged 39,858,000 and its employment 39,566,000, or 99.2 per cent of its labor force. In the ten years 1920-1929, inclusive, its labor force averaged 44,980,000 and its employment 43,360,000, or 96.4 per cent of its labor force. In the ten years 1930-1939, inclusive, its labor force averaged 51,441,000 and its employment 42,973,000, or only 83.5 per cent of its labor force. The Roosevelt administration was in power seven of the ten years 1930-1939, inclusive, when employment was the smallest percentage of the labor force that it was in any of the four decades in the years 1900-1939, inclusive.

No country ever has had approximately full employment for a period of years excepting under either (1) a regime of competitive private enterprise unhampered by government interference, or (2) a regime of huge government spending, as for war. And these two kinds of regimes are incompatible in peace-time; for huge government spending, by imposing excessive taxes on private enterprise and subsidizing competition with it, curtails in peace-time the producing and employing power of private enterprise more than it increases the producing and employing power of government. After having closely observed the development of totalitarian socialism in Russia, Germany and Italy, Dr. Ludwig von Mises, former leader of the "Austrian School of Economics" says in his book entitled "Bureaucracy":

"Capitalism means free enterprise, sovereignty of the consumers in economic matters, and sovereignty of the voters in political matters. Socialism means full government control of every sphere of the individual's life, and the unrestricted supremacy of the government in its capacity as central board of production management. *There is no possible compromise between these two systems. Contrary to a popular fallacy there is no middle way or third system possible as a permanent social order.* The citizens must choose between capitalism and socialism, or, as many Americans say, between the American and the Russian way of life."

There is, as a result of the war, a large accumulation of consumer purchasing power and a large accumulated demand for both consumers' goods and consumers' durable goods—the latter such goods as housing

mobiles. It is probable, therefore, that for ears after the war there will be so much of such goods as to create apparent pros- But if prolonged real prosperity and large ment are to prevail, such buying by con- must be supplemented and supported by ndingly laarge buying of durable goods by s for maintenance, improvement and expan- plant. The volume of such buying by s will be determined by its current and tive profits.

re's the rub" for Mr. Roosevelt and the labor and others of socialistic propensities who ed him. For they do not recognize the vi- portant role played by business profits in ining business buying of durable goods and ment. They favor high monopoly wages es tending unduly to curtail business prof- ich restrict buying of durable goods and ment by business. Then they threaten that ate enterprise does not provide "full em- nt" it will be provided by government ng and consequent increased taxation— will further curtail employment by business!

election returns contain no discernible man- r the Roosevelt administration in its fourth o follow such economic policies as just out- Undoubtedly a majority favored a reversal trend toward union labor dictatorship and arian socialism. And it can be predicted nly too much confidence that if policies re- ng business profits and increasing govern- debt prevail, the few years of seeming pros- that probably will immediately follow the ill be succeeded by as severe depression and ployment as the nation ever has known.

nce the strongest, most courageous and most d efforts possible should be made during Mr. evelt's fourth term by all who believe in pri- enterprise to make it function successfully o prevent adoption of policies inimical to its ssful functioning. For many of the most ef- ve supporters to whom Mr. Roosevelt is in- d for a fourth term so hate private enterprise hey would stop short of nothing to destroy it.

bor Relations — a mmon Meeting Ground

program of exceptional interest is now being ex- mented with at Boston. Early in the year a labor r suggested to the Boston & Maine Branch of the M. C. A. that it consider sponsoring an educational ram on labor relations, in the interest of promot- better understandings between men and manage- t. It was felt that the Y. M. C. A.—a neutral nization with representatives of both men and man- rent on its governing board, and with a strong itual background—would afford an ideal forum constructive and co-operative discussion.

s the first step an educational committee, composed representatives of both labor and management, was anized to study the suggestion and, if possible, draw e program. Eventually a course of ten lectures was ided upon, a question and answer period, under ert guidance, to follow each lecture. Well-known authorities, representing labor, management and the public, were invited to give the addresses. The course was sponsored jointly by the Boston & Maine Railroad Y. M. C. A., the Massachusetts Division of University Extension, the Standard Railroad Labor Organizations and the management of the Boston & Maine. State certificates will be awarded to those satisfactorily completing the course. A fee of four dollars was charged. Labor and management co-operated in publicizing the project and in signing up members for the course. The meetings, which started on October 17, with an enrollment of 180, are now well on the way to completion; the average attendance thus far has been about 170 and the interest has been well sustained.

What subjects are being discussed and who are making the addresses? It was recognized that some of the topics, such for instance, as responsibilities of labor and management, would have controversial aspects. Three separate meetings were therefore devoted to a consideration of this particular topic. Labor's viewpoint was presented by Robert J. Watt, international representative, American Federation of Labor; Vice-President of Personnel L. W. Horning of the New York Central, gave management's viewpoint; and Rev. William J. Kelley, O. M. I., chairman, State Labor Relations Board, New York, spoke for the public. In like manner H. A. Enochs, former vice-president of personnel, Pennsylvania Railroad, gave management's views on techniques of negotiations, while Harry W. Fraser, president, Order of Railroad Conductors, spoke for labor at another meeting in the series. The course was opened with a lecture on world economy, by Dr. Sumner H. Slichter of Harvard University. The role of government in labor relations was discussed by Frank L. Mulholland, general counsel, Railway Employees Department, A. F. L. Other kindred topics were discussed by authoritative speakers.

The outcome of this experiment will be watched with keen interest by those who recognize the importance of promoting better understandings in labor-management relations on the railroads. There are, of course, certain matters about which there will naturally always be differences of opinion between representatives of labor and management. There are other questions concerning basic principles and sound economics about which there is now needless disagreement because those concerned are not sufficiently well informed, thus resulting in friction and loss to all concerned—men, management, investors and the public. The railroads, if they are successfully to compete with other types of transportation and continue to give employment to large numbers of men and women at high wages, must have better understandings and closer and more hearty co-operation between labor and management. That was undoubtedly recognized by the discerning labor leader who suggested that the common problems of labor and management be frankly and openly discussed on a common platform, in an atmosphere conducive to constructive cooperation.

Car Officers Should Speak Up

As "honor night" speaker at the November 21 meeting of the Car Department Association of St. Louis, LeRoy Kramer, first vice-president of the General American Transportation Corporation, paid tribute to this aggressive group of car men in the important St. Louis gateway and said that their association should be an inspiration and example to similar groups in other sections of the country if the car department as a whole wishes to earn its proper recognition. In discussing the subject, "What's the Matter With the Car Department?", Mr. Kramer emphasized a fact which must be widely known but about which little is done, namely, that the great bulk of car repair work, particularly on freight equipment, is done under more or less adverse conditions as regards protection from the weather and provision of all the mechanical tools needed for efficient handling of the work. He said that car supervisors should not hesitate to "speak up" in making the needs of the car department known to their superior officers.

Railroads are now handling a record-breaking traffic and an appreciable percentage of their earnings will be authorized for the purchase of new freight cars in 1945. What the railroads need is maximum serviceable freight-car miles per day and new equipment is only a partial answer to this need. Rapid and efficient repair of equipment now in service is an equally or probably even more important factor. It seems apparent, therefore, that if capital expenditures are justified for new freight-car equipment, a reasonable proportion of railway earnings might also well be spent to modernize the facilities needed for maintaining these cars.

In attempting to solve the general freight-car maintenance problem, one of the first steps, which has already been taken by a considerable number of railroads, is the concentration of freight-car repairs in a smaller number of shops and repair tracks strategically located throughout the system. This eliminates many small outlying points with attendant important savings in labor cost, reduction in material inventories, overhead expense and other items chargeable to freight-car maintenance.

Second in importance is the re-arrangement (where necessary) and equipment of the repair points selected for just as efficient operation as possible considering the physical layout of the shop buildings and repair tracks.

In fact, one of the principal considerations in deciding which of the smaller repair tracks should be eliminated is whether the physical layout does or does not permit satisfactory operation, as for example, efficient handling of material and the straight-line method of car repairs where this is desired. Labor-saving tools and devices are a vital necessity, next to protection from the weather, for the efficient handling of heavy car repairs.

Higher railway officers cannot be expected to know in as much detail the real needs of their respective car departments as the supervisors who are in daily contact with car maintenance work and responsible for getting it done. Individually, these supervisors are among the most competent, loyal and hardworking of railway employees, but it is obvious, as pointed out by Mr. Kramer in the address mentioned, that they are failing to some degree in presenting railway managements with the facts and figures which would unquestionably serve to justify improved conditions and facilities for the maintenance of car equipment. Other departments get new tools and labor saving devices, but even in the mechanical department, itself, it is usually easier to get a $6,000 machine for the locomotive shop than a $600 tool for the car shop. It is indeed time for forward-looking car supervisors to "speak up" and they should be encouraged in this action by their superior officers.

He Forgot to Ask, First, About Her Folks

nion Surveys — How iable and How Useful?

recent election did not prove the reliability of all lls of public opinion—but a few of the best-known ost-experienced of these organizations did come shingly close to a correct forecast of the actual ar vote. Moreover, these few have now come near uality often enough so that there can scarcely any be serious question of the soundness of the tech- they have developed for determining, from a very sample, what public opinion is on almost any sub- Here, unquestionably, is a tool which, wisely used, ke the guess-work and the playing of hunches out blic relations work, and can put such activity on a g almost as dependably scientific as the designing ocomotive or a bridge.

ution is needed, of course, by any industry relying such polls, to assure that the methods employed in half are those which have been tested in the election casts. The fact that a few of these methods in skilled s have demonstrated their reliability does not argue every organization engaged in "questionnairing" is lly able to give trustworthy guidance.

s most railroad men are aware, the Association of erican Railroads has been having studies of this kind e for several years—by methods similar to those h have proved their accuracy by successfully fore- ing elections—and the findings have been suggestive helpful to those concerned with the railways' public tions. At least one individual railway has also availed f of this method of ascertaining the public relations blems peculiar to its territory (see *Railway Age*, il 15, page 722).

No industry needs more than the railroads to ascer- as accurately as possible, and promptly adopt, poli- s calculated to gain the utmost public understanding esteem. Without such support they can count ther upon sufficient customers nor upon a regulatory vironment which will enable them to earn a living. It ot sufficient to wait until misunderstanding reaches tage of widely-accepted untruth (such as the criticism inter-territorial rate variations or the other barefaced lumnies assiduously publicized by the Justice Depart- nt and other agencies of schematic misinformation), d then attempt to correct the situation by a few eeches and advertisements. A man careful of his alth gets examined periodically, in order to catch his ysical ailments at the incipient stage—and careful use opinion surveys could perform a similar service for e railroads in their dealings with the public. There is ot a single phase of the many difficulties that now eset the industry at the hands of politics which could ot have been headed off—if the railroads had been fore- arned and had taken appropriate corrective action in e early stages.

Another consideration of importance is that the man- gement which *knows* how the public stands on contro- ersial questions can be much more assured and resolute than a management without such knowledge, in dealing with politicians and others who may seek to deflect its course from the path of duty. The method affords the further advantage of enabling the railroads to determine the kind of passenger and freight service which will prove most acceptable to the public, and hence conducive to maximum traffic and revenues.

Progress in Advertising

At last there's one railroad that is doing something about it. For years joke columns, cartoonists and stage and radio comedians have tied their "gags" to railway timetables—and for years railway officers have joined in the laughter and shrugged off the implications that timetables were incomprehensible to a large proportion of the traveling public.

Recently, Boston newspapers carried a two-thirds page advertisement appropriately captioned "You can read and *understand* our timetables," as the beginning of a campaign initiated by the Boston & Maine and designed to convince the public that B. & M. timetables are as simple as third-grade arithmetic. Through a series of seven successive easy steps and appropriate illustrations the fundamentals of timetable-reading were carefully explained.

The advertisement was a clever development in the campaign that is being conducted by the Boston & Maine to promote public goodwill and a better understanding between the railroad and its patrons. It is a good illustration of a specific message written for and directed to a specific audience. Its language appeals to railway patrons because in the course of its preparation preliminary drafts were submitted to patrons for their criticism. And, in its final form it has an appeal that succeeds in its purpose of convincing the reader that B. & M. timetables actually are easy to read and to understand.

Railway advertising in general has progressed to a considerable extent during the last five years. Prior to that time a relatively small proportion of the advertising budget was devoted to freight advertising. Even in the case of institutional type copy, little reference was made to freight. But, before the war induced the railways to refrain from competitive advertising, it was clearly evident that the trend was toward the promotion of freight traffic. And during the war, railway advertising has featured the indispensable part that the American railways have played in the titanic struggle

Progress in railway advertising also has been marked by the growing realization, on the part of the railway publicity and advertising officers, of the need for a thorough analysis of the media, the audience and the copy. One of the most important considerations in this connection is preparing and directing the proper type message to a specific audience. This point is well illustrated in the B. & M.'s timetable advertisement and the distinction will be even more important in promoting competitive post-war freight traffic.

U. S. Railway Men in Novel Role

Direct rehabilitation of railroads in Mexico as step in nation's war effort and in its "good neighbor" policy

By Elmer T. Howson*

Power Track Tools, Introduced Largely by the Commission, Are Playing an Important Part in Rehabilitating the Tracks of the Mexican Railways

WHEN the history of the present war is written in its many ramifications, and the contributions of American railway men are recorded in the detail that their magnitude warrants, one of the most interesting chapters will deal with the work of the United States Railway Mission in the Republic of Mexico, which is an agency of the Co-ordinator of Inter-American affairs, headed by Nelson A. Rockefeller, which is in turn a division of the Office of Emergency Management.

Early in the present war, it was realized that Mexico was in a position to furnish many minerals and materials that were greatly needed, including lead, copper, zinc, mercury, antimony, ixtle, henequen (to take the place of Philippine hemp), mahogany and other Mexican hardwoods (for airplane and P. T. boat construction), etc. Through its newly completed connection with the railways of Guatemala, Mexico was also in position to deliver bananas, coffee, pineapples, cattle and other food stuffs, whose long-established delivery by water had been interrupted by the diversion of boats to war-time service and by enemy submarine activities. In all, this northbound traffic in essential materials is estimated to reach 1,300,000 tons (or 35,000 car-loads) a year. Since it was imperative that we secure these materials at the earliest practicable date, in the interests of our war effort, and since the Mexican government was not prepared to supply the necessary transportation facilities, negotiations were entered into to devise a means for cooperation between the two nations, looking to the rehabilitation of those lines of the Mexican railway system that were essential to the movement of this traffic.

The Agreement

These negotiations crystallized in an exchange of notes between Sr. Ezequiel Padilla, foreign minister of Mexico, and Hon. George S. Messersmith, ambassador of the United States to Mexico, dated November 18, 1942, in which it was set forth that:

(a) the National Railways of Mexico are not able to carry the additional traffic that will grow out of the enlarged American purchases of critical war materials and foods and that the war efforts of the allied nations will suffer thereby:

(b) the government of the United States will undertake to co-operate in the improvement and development of these key railway lines whose capacity must be increased sufficiently to permit them to transport this added tonnage of war materials.

This article is a discussion of the purpose, organization and work of the United States Railway Mission in the Republic of Mexico, an agency of the Co-ordinator of Inter-American Affairs in the Office of Emergency Management. It is based upon first-hand knowledge of railway conditions in Mexico during the last two decades by the author, who, until his death on September 1, was western editor of *Railway Age*. It should be emphasized, however, that the article is an unofficial report, and that the appraisals contained therein represent the personal observations and opinions of the author alone.

The lines mentioned specifically in this agreement include:

(a) the main line extending from the international border at Laredo, Tex., via Monterrey, Saltillo, and San Luis Potosi to Mexico City;

(b) the East-West line from Torreon via Paredon to Monterrey:

(c) the Southern division extending from Cordoba,

*Until his death on September 1, 1944, western editor of *Railway Age*.

nd Puerto Mexico via Jesus Carranza and Ixtepec
ate on the Guatemala border;
he line between Chihuahua and Torreon.
nemoranda provided that the United States would
s equitable portion of the cost of (a) the materials
ipment and the labor necessary for the rehabili-
f these lines, and (b) the cost of repairing in
ted States certain locomotives and other equip-
nd (c) would provide technical assistance to
his work.

United States Railway Mission in Mexico is an
ation of experienced American railway techni-
aded by Oliver M. Stevens, who was designated
of the Mission with headquarters at Mexico
nd who came to this assignment on November 10,
rom the presidency of the American Refrigerator
Co., St. Louis, Mo., private car line subsidiary
Missouri Pacific, and who, prior to October 1, of
ar, had been executive representative of the Mis-
Pacific at Denver, Colo., for 5¾ years.* Mr. Ste-
ad associated with him a staff of approximately
nical assistants drawn from the railways of the
States and specializing in mechanical, mainte-
f way, stores and transportation activities.

Background of National Railways

railways of Mexico comprise a system of some
miles. The largest unit is the National Railways,
em of 8,384 miles; the next largest properties are
e Southern Pacific of Mexico, which operates from
nection with the parent American system at Nogales,
to Guadalajara, Jal., with 1,331 miles of lines and
he Mexican Railway Co. Ltd., an English-owned
f 431 miles, operating between Mexico City and
Cruz. The remainder of the mileage consists of
er properties. The National Railways comprise a
n of 7,356 miles of standard gage and 1,028 miles
rrow gage lines, with 1,020 locomotives, 17,302
cars and 948 passenger cars. The Mexican Gov-

*ce this article was written, Mr. Stevens has returned to the United
to resume his former duties as president of the American Refrigera-
ansit Company, effective September 1, 1944, and was succeeded as
f the Railway Mission in Mexico by Elliot V. Vandercook, as an-
d in the *Railway Age* for September 2, page 380.

ernment now holds 51 per cent of the stock of the parent corporation, the National Railways of Mexico, and, following various "expropriations", operates the property. Control is exercised through a board of seven directors, including the federal ministers of communications, finance and labor, as representatives of the government, the general manager (the chief executive officer of the railway) and three representatives of labor.

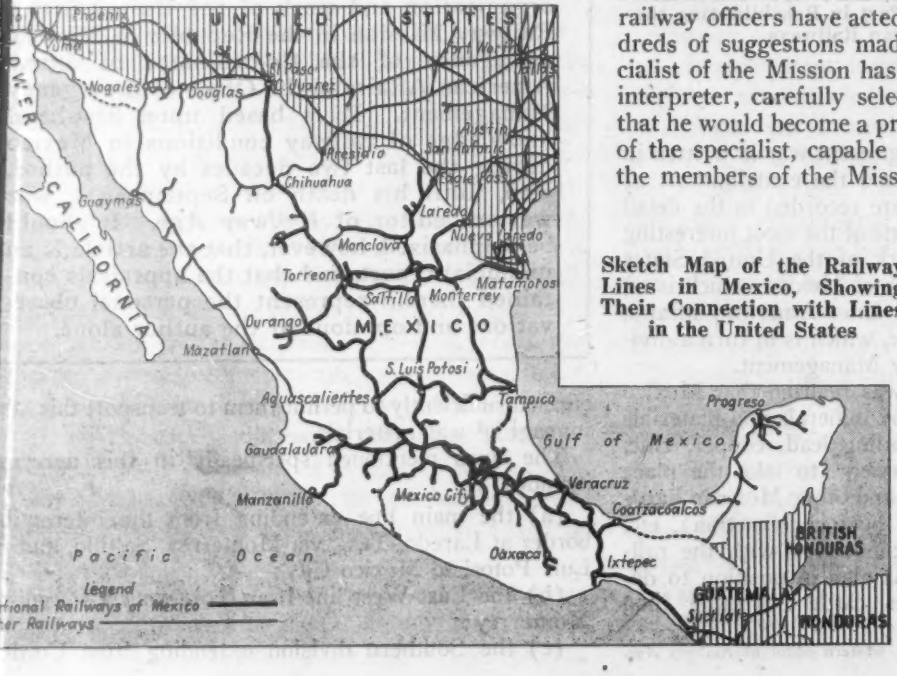
Lines Once on Verge of Collapse

When the first members of the Mission reached Mexico, they found the railways on the verge of collapse and the demoralization spreading rapidly to other industries. Embargoes were widespread. More than 100,000 tons (2,500 carloads) of lead, zinc and copper ores and concentrates were awaiting cars for shipment and mines and smelters were being forced to curtail and suspend production, and remote sections of the railways were being forced to suspend operations because of inability to secure fuel oil. Practically the entire country was being forced to a hand-to-mouth basis of existence because of the near-collapse of railway service.

Hurried surveys of the railways showed terminals blocked and traffic badly delayed; 30 per cent of the locomotives out of service awaiting repairs and the remainder hardly 50 per cent efficient; 30 per cent of the freight cars in bad order, many under load for periods up to 18 months; more than 4,000 foreign cars on line under per diem expense, many standing still for weeks and even months; locomotive failures staggering in number; tracks unsafe and accidents increasing. Equally staggering was the waste in materials and in manpower that was everywhere evident—a waste estimated to be 50,000,000 pesos ($10,000,000) annually.

The Mission's Work

The Mission first made a detailed mile-by-mile check of those "critical" lines, shops and terminals that came within the scope of its activities and a program of rehabilitation was drafted. The Mission worked with the Mexican government authorities and with the officers of the National railways, acting only in an advisory capacity and leaving the execution to the Mexicans. In this the Mission has received uniformly hearty cooperation. The railway officers have acted quickly and favorably on hundreds of suggestions made to date. Each technical specialist of the Mission has been supplied with an efficient interpreter, carefully selected with the thought in mind that he would become a proficient student of the technique of the specialist, capable of carrying on the work when the members of the Mission return to their railways in the United States. In rebuilding the railway, it was necessary to start first with the executive personnel. President Avila Camacho recalled to the service of the railway a number of experienced and trained officers.



Sketch Map of the Railway Lines in Mexico, Showing Their Connection with Lines in the United States

At a time when the American railways were in desperate need for cars, 6,000 of their cars were detained on the Mexican lines and per diem payments of the latter lines had risen from 2,000,000 pesos ($400,000) in

Under the Supervision of the United States Railway Mission, Order Has Replaced Chaos at Many Storeyards

1939 to a rate of 10,000,000 pesos ($2,000,000) early in 1942. This heavy drain on American car supply and on Mexican railway revenues was due to the disorganized state of the car repair program of the Mexican railways. About 4,000, or 30 per cent, of the Mexican railway cars were out of service awaiting repairs. The Mission developed a program that returned more than 1,000 of these cars to service promptly. It also initiated measures to clear up bad order foreign cars and secure the return of these cars to their owners. Furthermore, it was estimated that the Mexican railways could increase their income 5,000,000 pesos ($1,000,000) annually by making necessary repairs to these foreign cars and properly billing the owning roads in accordance with A. A. R. procedure.

An order was issued by the Car Service division of the A. A. R. late in June, 1943, prohibiting the delivery to the Mexican railways of empty cars for loading; while an executive decree was made effective on June 5, 1943, arranging for all cars entering the country under load for Mexico City, or points beyond, to proceed to Mexico City for customs inspection, a measure that reduced the previous serious delays at Nuevo Laredo, the principal port of entry for rail traffic. Efforts were also made to return to commercial service all suitable cars that had been diverted to material storage or other service.

Locomotive Performance Corrected

More than 1,300 locomotive failures occurred in the 13 months from November, 1941, to November, 1942, inclusive. Furthermore, due to the discontinuance of the treatment of locomotive water supplies, the average life of fireboxes declined to only 3 to 4 years, as compared with an average life of 15 years on the American roads. Similarly, on the Mexican National lines, the life of locomotive flues seldom exceeded one year and frequently did not exceed 3 to 8 months, as compared with an average life of 4 years in the United States. Since the average cost of a set of flues to the Mexican railways is 1,500 pesos ($300), the magnitude of this loss is apparent. This situation is now being corrected under the initiative of the Mission and with the assistance of water treating specialists from two leading American concerns, with the result that the railway is again running some of its locomotives through between Mexico City and San Luis Potosi and hopes soon to extend these runs to Nuevo Laredo.

The National Railways have also acquired 29 locomotives second-hand from railroads in the United States. They have also bought 2,030 new freight cars (box, tank and gondola), in addition to some second-hand cars.

To overcome the excessive failure of locomotive side and main rods and to correct other equally serious deficiencies in practice, the Mission brought to Mexico for a short time a metallurgist from one of the railways of the United States to make a critical survey of the metalworking practices in vogue. This man made numerous recommendations for the correction of existing deficient practices. The Mission has also brought about the revision of formulae for steels produced for various railway uses at the Monterey mills. It has arranged for the installation of modern heat-control furnaces at the large shops at Aguascalientes and for the concentration there of all such work for the system, in lieu of hand forging at 8 or 10 shops throughout the system. Further in this direction, the Mission arranged for a group of shop foremen and mechanics from the Mexican National railways to visit modern shops in the United States to observe and learn proper shop practices and procedures.

Initiates Centralized Reclamation

To date, the Mission has not found it possible to do any work on the Monterey-Torreon line which was included in the agreement and it is making no expenditures on its own account for the repair of cars. It is likewise providing no extra labor for roadway maintenance where the regular forces now employed are sufficient for the work to be done. On the Suchiate line (Southern division) where it was necessary to work against time to get the track into condition for dependable operation before the arrival of the rainy season, the Mission put on 800 men for some months, in addition to the normal maintenance forces. On this line equipment was installed for securing a good grade of gravel ballast from stream beds to replace the dirt ballast heretofore used. The Mission is paying for limited quantities of some materials, such as lock washers and rail anchors for track work, and has spent $160,000 for American roadway work equipment, including tie tampers, adzes and motor cars for service primarily as demonstration units. The Mission also paid for 800,000 ties required for strengthening the Laredo-Mexico City line.

Another measure initiated by the Mission was the installation of a central reclamation plant at San Luis Potosi at which materials are assembled from the system for salvage and reclamation. This plant has superseded smaller inefficient plants at various terminals and is expected to save 2,500,000 pesos ($500,000) a year. In addition the Mission has been instrumental in establishing in conjunction therewith a central scrap sorting and handling yard 100 ft. wide by 900 ft. long in initial dimensions, with provision for expansion as needed. The Mission also promoted the modernization of storehouse operations by supervising the installation of a small modern storehouse, with modern shelving, etc., at San Luis Potosi to serve as a demonstration unit.

Great Opportunities

The National Railways possess many advantageous conditions. The climate is such that they escape the difficulties of cold weather operation, the locomotives all burn oil, a large part of the lines are located in a semi-arid country, making for favorable track maintenance conditions, and the railways are practically free from competition and the uneconomic practices that grow therefrom.

The National Railways also have good men, potentially

(*Continued on page 818*)

A Look at the Coming Locomotive

Thermal efficiency subordinate to capacity — Designer alone is not responsible for availability

By Ralph K. Johnson

Chief Engineer, Baldwin Locomotive Works

DESPITE competition from all other types of transport, the railroads have always obtained at least 60 per cent of the total freight traffic. Thirty-six per cent of this comes from manufactured and miscellaneous products and the balance from bulk goods, such as building materials, grains and coal. With this backlog the railroads can afford to spend money for improvements that will attract a greater proportion of the high-class freight, express, mail and passenger traffic.

Railroad motive power has been subjected to extraordinary wear and tear during the war years. Peace will make necessary a careful survey to determine whether this accumulated depreciation should be restored through repairs or through the purchase of modern and efficient power.

Another favorable sign that there will be post-war locomotives to design is the fact that the cash position of the railroads should be high at the war's end. The fixed charges of 25 Class I roads will have been reduced 70 per cent when plans for reorganization are completed and approved. In addition, much of the locomotive inventory is obsolete. For example, in 1941, less than three per cent of the steam locomotives owned by Class I railroads were under 10 years of age, while in 1914, 57 per cent were in this category. In 1941, 47 per cent of a total of 41,765 steam locomotives were between 16 and 26 years of age, while 50 per cent were over 26 years of age.

Electric, Diesel and Steam Locomotives

The Diesel locomotive seems at the moment to be tied up to electric propulsion, and this means that designing ingenuity will be confined to the Diesel engine proper. Higher speed and, therefore, more compact engines may allow the placing of more power in a given space. Better materials and processes will give the designer a chance to improve reliability and lower maintenance. The Diesel will acquire an added appeal if future engines can be designed to burn lower grades of oil. Work is being done along all of these lines and we have every reason to believe that post-war Diesel design will not be static.

The electric locomotive comes closer to a railroad man's ideal of motive power than any other type, but unfortunately the capital investment required for substations, transmission lines, overhead wires, etc., make its cost prohibitive, except where density of traffic is very great. However, in certain parts of the country, where extensive government projects have excess power available at low rates, railroads may find it profitable to re-examine this type of power for main-line freight haulage.

In taking up post-war designs of steam locomotives I cannot refrain from making a few general remarks in reply to those who point with scorn to this type of power as "obsolete" and "backward." The main criticism is that the locomotives of to-day are reciprocating, non-condensing types of from 6 per cent to 8 per cent thermal efficiency, rather than high-pressure, high-temperature, turbine, condensing locomotives of up to 20 per cent thermal efficiency. The implication is that designers have not troubled themselves to achieve higher efficiencies, whereas, nothing could be further from the truth.

Locomotive designers have for years striven for greater efficiency, but the cold, hard facts of economics have usually prevented full realization of theoretical savings. For the fuel and water savings resulting from higher thermal efficiencies must not be swallowed up by high operating and maintenance costs, capital charges, or unreliable performance. And most important of all, at least in the United States, is the fact that fuel is cheap and railroads are not so interested in saving a few tons of coal as they are in getting the maximum power in a given weight and space. In other words, United States railroads are interested first, in weight-space-efficiency, and only secondarily in thermal efficiency.

If it were possible to get 25 per cent thermal efficiency in a steam power plant of no more space and weight than required for a steam locomotive, why do public utilities build stationary plants covering city blocks. The answer, of course, is that the equipment required to obtain the high efficiency, including chain grate stokers, pulverizing equipment, combustion-space volume, stacks, preheaters, economizers and condensers, takes up considerable space. This space is simply not available on a locomotive and no device to improve the thermal efficiency of a locomotive can survive unless it gives a greater power return within the space and weight limitations. The superheater, feedwater heater and poppet valve fulfil this requirement, but the many other refinements available in stationary practice have not yet been made available in sizes suitable for application to locomotives.

Some Early Developments Still Good

As an example of the restrictions imposed on thermal efficiency by weight-space characteristics, consider a locomotive, which, working at a high rate, may require a back pressure of 20 lb. per sq. in. to burn coal at the rate required for adequate evaporation. At this high firing rate the velocity of the gases entering the tubes may be as high as 300 m.p.h. and it is quite possible for 25 per cent of the coal fired to go up the stack unburned. If the draft is reduced to avoid this loss of coal up the stack, then insufficient water is evaporated and the locomotive cannot deliver the power demanded.

The success of the first locomotive was not assured until 1827 when the exhaust steam from the cylinders

Note—This article is an abstract of a paper presented before the Pittsburgh Railway Club on September 28 and the Southern and Southwestern Railway Club on November 16.

was applied through a blast pipe into the stack to increase the draft in the furnace. Consider the beautiful simplicity of this arrangement. Induced-draft fans in the smokebox have been tried but, due to the high temperatures and abrasive action of the cinders, their maintenance is excessive. Using the exhaust steam through a blast pipe not only requires no moving parts but automatically adjusts the draft to suit the power requirements. It is simple, cheap and automatic. The undoubted advantages of forced or induced draft fans simply cannot compete economically, as yet.

The fire-tube locomotive type boiler can generate steam in greater quantities and faster for a given space than any other type of boiler. Consider its ability to evaporate 100,000 lb. of water per hour at pressure up to 300 lb. and with a total steam temperature of 750 deg. F. and still only weigh about 65 tons, including feedwater heater, superheater, grates and all necessary piping and accessories. When, to this high capacity in a small space, is added its simplicity of construction, low maintenance and ability to respond quickly to varying power demands, it becomes evident why this type has fitted the needs of the railroads so admirably. It also has been used extensively on destroyers for the same reason. It liberates as much as 400,000 B.t.u. per cubic foot of combustion space, where large and efficient stationary plants only liberate from 25,000 to 50,000 B.t.u. per cubic foot. It evaporates in a given time, 10 times as much water as a stationary plant of 25 per cent thermal efficiency with few of the economy devices, and with less than one-tenth of the weight and space required by the stationary plant.

Future Locomotive Characteristics

The reason the steam locomotive of to-day has retained so many of the characteristic features of the original Stephenson design, is that it has met the above requirements better than the numerous attempts to improve upon it. However, many improvements in steam locomotive design have met the rigorous demands of service and have been incorporated in modern designs. For example, the superheater, feedwater heater, light reciprocating parts, alloy steels, lateral-motion devices, locomotive bed castings, mechanical lubrication, roller bearings, and many more are on the way to "making the grade," such as the poppet valve. The steam locomotive of the post-war years is not going to take a sudden dramatic jump into higher thermal efficiencies, or 100 per cent availability, but the steady improvement of the years will be continued. Availability, which means the opportunity to amortize capital charges more quickly, should be the main aim of designers, rather than thermal efficiency.

Some of the details that identify modern power do not change the outward appearance of a steam locomotive much, but "hide their light under a bushel." Nevertheless, all locomotives will have the complete list in the future:

Adequate steam passages
Large grates.
Combustion chambers to give large furnace volume.
Mechanical lubrication of as many places as possible.
Alloy steel boiler plate.
Light weight reciprocating parts.
Greater use of alloys and heat-treated parts.
Proper counterbalancing.
Feedwater heaters.
Lateral-motion devices.
Locomotive bed castings
Roller bearings.

Then there are other problems on which much effort is being expended. Some are being solved while others are proving hard nuts to crack. I will name a few:

Poppet Valves—A reciprocating steam locomotive with a piston valve cannot have the valve events arranged for the most efficient use of steam at all speeds, as the valve ties all events together rigidly. The poppet valve, by allowing the various valve events to be regulated independently of each other, offers an opportunity to use steam more efficiently, especially at higher speeds. Higher mean effective pressures at higher running speeds raises the power output of the locomotive. Poppet valves are now in service on a number of roads and have proved their reliability.

Burning Pulverized Coal—The accomplishment of this in locomotive boilers has always fallen down for one reason, i. e., slagging. There is no trouble getting good combustion in the firebox of a locomotive but this is only half of the problem. The fusing temperature of the ash in the coal is around 2,200 deg. F. With the temperature of combustion around 2,800 deg. F. the ash is molten and quickly coats the furnace, cutting down heat transfer. Therefore, the furnace must be big enough to cool the ash below 2,200 deg. before it hits any heat absorbing surface. This is difficult even in stationary practice where plenty of space is available.

High Pressure and Temperatures—Boiler repairs, both in time consumed and cost, are now the greatest handicap to steam locomotive availability. Higher pressures than 350 lb. per sq. in. will require water-tube boilers, and so far it has not proved possible to design a water-tube boiler, within the space available, that offers hope of lower maintenance. Regardless of the improvement in thermal efficiency possible with higher pressures, the railroads will not accept any boiler that adds to boiler maintenance difficulties. Some of the problems posed by higher pressures are:

a—Special valves and fittings required to stand both pressure and cutting action of high-pressure steam.
b—Steam and water drums—expensive if solid-forged.
c—Tubes and possibly drums would be welded in place, which would require change in I. C. C. rules.
d—Structural strength of locomotive now dependent on boiler, would have to derive from some other source.
e—Difficulty in retaining water level on grades with drums.
f—Forced or natural circulation. If forced circulation, pump reliability is essential.
g—The best of feedwater required.
h—How to clean tubes as required by I. C. C. regulations.
i—Special materials required for superheater units.
j—Where to store a reserve of steam for sudden, short-term demands.
k—More complete combustion necessary or stack heat losses will be large.
l—What type of prime mover can use higher pressures to best advantage; simple reciprocating, compound reciprocating, or turbine.
m—How high should pressure be? Gain in efficiency falls off rapidly above 600 p.s.i.

All of these problems can be met and several designs are at this moment being considered for trial, but it still is not clear whether they will meet the test of improving the availability of the steam locomotive.

Welded Boilers—One of the surest ways to lower the maintenance costs of locomotive boilers, as well as the weight, is to weld them completely. At present this is prohibited by I. C. C. regulations, but permission has been given to build several welded boilers, and in time I believe their use will become standard.

Turbine Drives—A number of turbine locomotives, both condensing and non-condensing, direct-connected

and with electric transmission have been built in the past and probably the only comment necessary is that none of them have been duplicated. The condenser unit is complicated and requires more space than is available. Also, its maintenance is high. Therefore, the most recent efforts have been with non-condensing types. The turbine's advantages of more power per unit of steam, uniform torque and lower maintenance have made it attractive in spite of its variation in efficiency with load. At the present time a locomotive of this type designed by Baldwin and Westinghouse, is just about to go into service on the Pennsylvania and it is expected will prove attractive for high-speed, long-distance passenger service. Its advantages are:

1—A 15 per cent to 20 per cent improvement in thermal efficiency over a conventional two-cylinder reciprocating steam locomotive.

2—Elimination of reciprocating parts, dynamic augment, and unbalanced forces.

3—Shorter rigid wheel-base for equal capacity.

4—Smaller wheels satisfactory.

5—Lower center of gravity.

6—Improved high-speed performance.

Gas Turbine Locomotives—The application of a gas-turbine to a locomotive offers advantages in railroad service, and after the war an experimental gas turbine for locomotive application will doubtless be built. The thermal efficiency of such a locomotive should be approximately 17 per cent—about double that of a steam locomotive.

The Duplex Locomotive

There is an advance type of motive power now on the market which has definitely proved itself in service, and which I believe is going to be both popular and economical. It is not too radical in design to make it slow of acceptance, but it does embody the best of locomotive art. I refer to the four-cylinder duplex type, of which the Pennsylvania 's T-1 class is the outstanding example. The reasoning behind this type is simple.

The 4-8-4 type locomotive has become increasingly popular in the last 15 years as an all-around passenger and freight locomotive. But its great power resulted in high piston loads and increased maintenance of crank-pin bearings and crank pins. Therefore, it seemed logical to split the two cylinders into four, and to retain the rigid frame. Locomotives of this type have been built as 4-4-4-4's, 4-6-4-4's and 4-4-6-4's. Cylinders have been tried at front and back but the better arrangement seems to be front and center, in spite of the longer rigid wheelbase.

Some of the advantages of this type are as follows: The stroke is shorter, resulting in lower piston speeds and allowing a higher mean effective pressure in the cylinder at a given locomotive speed.

The Pennsylvania's 4-4-4-4 type locomotives have a piston load of 92,000 lb., whereas, the usual 4-8-4 type runs about 150,000 lb., and we have built them with a piston load as high as 185,000 lb. The smaller load on the 4-4-4-4 type pins means smaller bearings at the back end of the main rod.

The rod arrangement is the most simple and permits of the best possible condition at the main side-rod connection, which in the four-coupled arrangement need only be large enough to transmit the load to one pair of drivers as contrasted with the large side-rod connection necessary on 4-8-4 to transmit the load to three pairs of drivers.

As the number of coupled drivers increases, so also does machine friction. Splitting up the drivers of a 4-8-4 into two groups, as on the 4-4-4-4 type, reduces the machine friction and so gives a higher drawbar pull, especially at high speeds.

A 4-8-4 type with a 27-in. cylinder and a 12-in. piston valve is definitely crippled at high speeds by the inability of the valve to handle the steam efficiently. The poppet valve overcomes this handicap and is equally effective on the four-cylinder type, but if piston valves are used the four-cylinder type has a definite advantage over the 4-8-4.

The maintenance of this type of locomotive should be less than that of a 4-8-4, 2-10-4 or articulated type of locomotive, as the reciprocating parts are light, the rods simple and the piston thrust low.

What About Availability?

The Diesel locomotive sells itself primarily on account of its high availability. But a large part of this availability stems from the fact that users have been forced by its high cost to keep it running. No expense is too great to improve its productive time. Railroads purchasing Diesels immediately install concrete inspection pits, drop tables and special facilities of all kinds, including store-rooms full of spare parts. Then they send an extra man along on all runs to make minor repairs enroute. Terminals which used to get along with 10 to 15 men to handle all steam power, immediately jump to 40 to 50 men when part of the service is charged to Diesel power. This is commendable and desirable but if the same interest in keeping steam locomotives moving was exhibited, a surprising increase in availability would ensue.

The writer knows of several terminals where wheels of steam locomotives cannot be dropped and, even if they could, no spare set of driving wheels would be available. A locomotive coming into these terminals with driving-wheel trouble has to be shipped "dead", in one particular case, a distance of 200 miles to get new wheels, with the result that it is out of service a week instead of one day.

There are also many terminals where no hot-water boiler washing facilities are available. Washing and filling with cold water results both in greater time out of service and increased maintenance. And yet, such terminals have operated this way for years, in spite of pleas by superintendent of motive power to management. But all of you have seen the complete terminal facilities for Diesels.

Records with Modern Steam Power

There never was anything inherent in a steam locomotive that prevented it being run over several divisions, and yet for years they were never run beyond one division and there are still some roads that will not run their locomotives as far as they should. The Association of American Railroad Superintendents' report of 1941 shows average miles per active locomotive day of 195.6 in passenger service, and 116.4 in freight service. Compare this with a 4-6-4 type locomotive on the Milwaukee that made 10 complete round trips in 30 days of 1,839 miles each, an average of 613 miles per calendar day. And this with no special attention. One has only to study the remarkable records made by the Norfolk & Western which made its 2-8-8-2 type steam locomotives available 17½ hours out of 24, to see that much can be done to make unused locomotive capacity available. Records on many roads show that modern steam power, less than 10 years old, is capable of operating approximately twice the number of miles per month than can be handled by locomotives of 20 years of age. Much of this ability results from the fact that modern locomotives can run 300,000 miles

(*Continued on page 818*)

N. I. T. League Annual Meeting

Refuses to endorse user charges for inland waterways or uniform I. C. C. regulation of all carriers; will head movement for memorial to Eastman

REJECTING recommendations of its special committee on transportation policy, the National Industrial Traffic League, at its annual meeting in New York last week, refused to endorse the principle that user charges should be assessed on inland waterways created at public expense, or to go on record as favoring Interstate Commerce Commission regulation of all domestic for-hire transportation agencies, including the air lines. Meanwhile, however, the League did accept another of this special committee's recommendations, thus going on record as endorsing, with certain stipulations, the principle that it should be permissive by law for operators of one form of transportation to operate other forms. And it condemned the pending anti-trust suit against the railroads, calling for its withdrawal on the grounds that the "broad prayers," if granted, "would tend to destroy beneficial practices and procedures of long standing, contrary to the public interest and to the disadvantage of shippers of the country."

The meeting, held in the Hotel Pennsylvania on November 16 and 17, was attended by approximately 500 members and guests. The League now has 1,071 members, the largest number in its history, the membership committee reported. The executive committee fixed the next annual meeting for November 29 and 30, 1945, at the Palmer House, Chicago, leaving to the officers the decision of calling a special meeting next spring.

Present officers were reelected for another year, including President John B. Keeler, assistant general traffic manager, Koppers Company, Pittsburgh, Pa.; Vice-President Alonzo Bennett, vice-president, Federal Compress & Warehouse Company, Memphis, Tenn.; and Treasurer Roy W. Campbell, manager, Traffic Department, Butler Paper Corporations, Chicago. Charles S. Seal, traffic director, Baltimore (Md.) Association of Commerce, continues as chairman of the executive committee.

Will Lead Campaign for Eastman Memorial

The sessions were devoted entirely to consideration of committee reports and other business. The latter included the League's decision to assume leadership in a movement to establish a memorial to the late Joseph B. Eastman in the form of a "Joseph B. Eastman Foundation"—a fund to be administered by the president and trustees of Amherst College, Mr. Eastman's alma mater. The income would be used for instruction, research, and publications regarding governmental administrative agencies in all fields of business and American life.

The decision to assume leadership in the movement carried with it the League's commitment to contribute $3,333 a year for three years, a total of $10,000, to the proposed fund—provided the ultimate objective of raising the total amount needed can be attained. Persons interested in the movement have estimated that a $400,000 fund would be required, according to W. H. Day, manager, Transportation Bureau, Boston (Mass.) Chamber of Commerce, who presented the matter to the meeting. Mr. Day also advised that the president and trustees of Amherst had agreed to accept and administer the fund. The meeting's action authorized President Keeler to call a conference of all interested parties, and to participate in any plan which may be adopted at such conference.

While there were no addresses on the meeting's program, messages were received from Colonel J. Monroe Johnson, director of the Office of Defense Transportation, who warned that transportation burdens of the immediate future may be expected to increase; and from E. J. Connors, director of O. D. T.'s Division of Transport Personnel, who commented on railroad man-power problems, saying that shortages "most hurtful" in the coming months would be switchmen, brakemen and firemen. Also there were President Keeler's brief remarks expressing his view that the threat of government ownership of railroads is greater today than it has been for some time.

Sees Government Ownership Threat

As he appraises the situation, there are influences at work in Washington which jeopardize continuance of the railroads under private control. If the country is to have a soundly-based system of transportation, he went on, the transportation agencies must have earnings which will permit them to operate efficiently. Also, Mr. Keeler is concerned about the subsidy situation in the non-railroad fields of transportation. He fears it may lead to subsidies for railroads, for he has heard railroad executives saying that such subsidies might be the only practicable way to equalize conditions. If any such plan were adopted, Mr. Keeler warned, "the door is open to government ownership and operation of the railroads."

By adopting a recommendation in the report of the special committee on transportation policy, the meeting had already renewed the League's "faith in and advocacy of the principle of private ownership and operation of our transportation agencies," and instructed the officers and committees to be "eternally vigilant to report to the League and combat measures and activities that are inimical to that principle."

That special committee was headed by Charles W. Braden, general traffic manager, National Distillers Products Corporation. It was created at last year's annual meeting "to study all questions of national policy and program concerning transportation with a view to formulating an affirmative declaration of the League's policy and position as to legislation, regulation, and the preservation and development of the national system of transportation under proper fundamental principles." The waterway user-charge proposal failed to get by the executive committee, whose recommendation that the matter be sent back for further study was adopted in the general meeting. The proposal for uniform regulation of all transportation agencies by the I. C. C. ran the gauntlet of the executive committe, only to be tabled on motion of the chairman of the aeronautics committee—H. R. Brashear, manager, traffic department, Aeronautical Chamber of Commerce of America.

Later on, however, the policy committee got accepted "as information" an expression of its view that air transportation "can no longer be considered in the pioneering stage," and that "ultimately all phases of aviation should

be put on a self-sustaining basis, including a reasonable user charge for airports, just as has been the progressive objective in regard to highways." The characteristics of air passenger transportation, it was added, "are such as to include in passenger rates due recognition of the economic cost of the service so as to enable the service to be placed on a self-sustaining basis as soon as practicable."

The adopted declaration on control of one form of carrier by another puts the League on record as endorsing "the principle that it should be permissive by law for operators of one form of transportation to operate, through ownership or contractual arrangements, other forms for performing of a complete transportation service for the convenience of the public upon making an adequate showing to the appropriate regulatory authorities that it would be in the public interest and would not unduly restrict competition of any form of transportation, or through the medium of geographical transportation systems. Furthermore, that operators of different forms of transportation should be encouraged under proper safeguards in the public interest to adopt any advancements in means of transport which will tend to make more complete or economical their service to the public."

Another recommendation of the policy committee, which was adopted, pledged the League's support to the railroads in their effort to secure amendments to the income tax laws to permit the deduction, from taxable income, of charges for deferred maintenance and accelerated depreciation—"under strict safeguards of the Interstate Commerce Commission to insure that the funds thus set aside will be used only to do the work after the war is over." Also, on the matter of air express, the committee got adopted a recommendation favoring "over-all responsibility and security to users of air-express service and continued coordination of transportation facilities such as now provided by the Air Express Division of the Railway Express Agency in planning for the future of air-express service of country-wide coverage." It was explained that it was not intended here to imply that R. E. A. should be the only express company operating in the field of air transport.

Drive for Land-Grant Repeal Urged

Other parts of this committee's report were presented "as information" or called for reaffirmation of previous declarations by the League. In the latter connection the meeting reaffirmed the position favoring only voluntary consolidations and coordinations by railroads, and opposing regional systems "under which completion would be substantially curtailed." On the matter of land-grant rates, the commitee urged members to contact their respective senators and urge enactment of the House-approved repealer which is now pending before a subcommittee of the Senate committee on interstate commerce. President Keeler made a personal appeal in the same connection, pointing out that if the repealer is not enacted before the end of the current session it will die with the Congress.

The call for withdrawal of the government's anti-trust suit against the railroads was recommended in a report submitted by the League's counsel, John S. Burchmore, for a special committee of the executive committee. In adopting that report the meeting also deplored "the broad scope of the suit . . . to the extent that the purpose is to destroy the railroad associations and committees and that it threatens to destroy the beneficial cooperation among railroads through the Association of American Railroads, the Western Association and similar organizations." And it took the position that "sweeping averments" in the government's bill "cannot be substantiated." Finally, it went on record in favor of Interstate Commerce Act amendments exempting rate bureaus operating under I. C. C. regulations from the anti-trust laws, meanwhile, however, opposing blanket exemption of common carriers from the Sherman Act "so long as it remains in force as to other branches of commerce."

Adoption of the legislative committee's report put the League on record against S. 2085, the bill introduced by Senator Hill, Democrat of Alabama, to create a Federal Transportation Authority, an Office of Public Transportation Counsel, and a National Transportation Advisory Committee along lines recommended by the defunct Board of Investigation and Research. Also opposed is H. R. 5237, the administration's procedure bill sponsored by Representative Smith, Democrat of Virginia. As to the so-called American Bar Association bills on administrative procedure—S. 2030 and H. R. 5081—the committee was instructed to progress the matter with a view to getting the best possible measure.

The committee noted how the League "is definitely on record as being opposed to the construction of the St. Lawrence waterway project." It felt unprepared to make recommendations at this time on the Wagner and Crosser bills (S. 1911 and H. R. 4805) to liberalize the Railroad Retirement and Unemployment Insurance Acts. Meanwhile it got adopted its recommendations opposing any statutory provision for territorial representation on the I. C. C., and legislation to increase the statute of limitations for actions against rail carriers from two to four years. Chairman F. F. Estes, traffic manager, National Coal Assn., gave the legislative committee report.

Hears Talk of Transport Department

Reporting for the special committee on reorganization of executive departments of the United States Government, Chairman A. H. Schwietert, traffic director, Chicago Association of Commerce, said that there is talk again in Washington of creating a department of transportation in the President's Cabinet. He added that Chairman Patterson of the I. C. C. and Director Johnson of O. D. T. have in the past expressed themselves in favor of the idea. Thus the meeting reaffirmed the League's previously expressed opposition to such a set-up and its position that the regulation of transportation should remain in agencies of the legislative branch.

The highway transportation committee's report was adopted as presented by Chairman L. F. Orr, general traffic manager, Pet Milk Company. Mr. Orr called it one which was "against superhighways as such," but nevertheless favored "clearing up bottlenecks." In other words, it found that "an urgent need exists for development of a program which, after the war, will overcome deficiencies in the road system, catch up on construction and reconstruction deferred during the emergency, and meet the nation's anticipated requirements." There was no recommendation as to amounts or distribution of money for highways, but action by Congress "without delay" was called for, it being further suggested that "all necessary postwar highway legislation" should be enacted "in a single comprehensive bill."

Other reports included those of the aeronautics committee and the intercoastal and coastwise transportation committee, the latter recommending that an adequate number of vessels for the resumption of services be restored to domestic coastwise and intercoastal carriers as soon as war requirements permit. Then there were the reports of other committees dealing with various specific matters relating to rates, classifications and service.

Why Railroads' Health Is Public's Concern

By E. E. Norris

President, Southern Railway

ONCE a family had a goose which every day laid golden eggs that kept this family fed and clothed. As the years passed, the members of the family began to take the old goose for granted. They sometimes forgot to feed it. Yet all the while the good old goose kept on laying one golden egg after another.

This family had good sons and bad sons; generous sons and greedy sons. It had a black sheep son, who proposed that they kill the old goose and get all its golden eggs at once. He got some support too. The lazy son saw a chance to get out of work and he said, "Fine." The greedy son went along. The "tight" son agreed, sensing a chance to save his share of the cost of feed. But the sensible members of the family prevailed—and the old goose went right on laying its golden eggs.

The black sheep son, being politically minded, became more determined than ever to get all the golden eggs at once. With the connivance of his lazy, greedy and penny-pinching brothers, he set out to kill the old goose by degrees. They gave almost all its feed to the other geese. They fenced it in one small corner of the barnyard. They tied it up so completely that it couldn't even move about to catch a fly. The other members of the family caught on to the scheme. Some of them protested, but most of the members of the family were not greatly concerned. Many of them were engrossed in the younger geese in the barnyard, hopeful that they would also grow up to lay golden eggs.

In spite of short rations and its penned-up life, the old goose continued to do its best. Bad times came. Many of the sons found themselves out of jobs. It was then that they all became aware of the risk they were taking by letting the greedy and nearsighted brothers starve and cripple the prolific old goose. Again the thoughtful and sensible sons prevailed. The old goose was released from its corner pen. It began to get its share of the feed. Before long it began laying golden eggs bigger than any it had ever laid before.

* * * * *

That is the story of the railroads in retrospect and prospect. The feed which sustains the goose that lays the golden eggs is the amount needed by the railroads to pay all their expenses, taxes, and a fair return on their investment. The golden eggs are jobs—lifetime jobs; jobs with security; jobs with opportunities for advancement.

* * * * *

The future of private enterprise is believed by many informed people to depend largely upon the capacity of industry to provide a job for every able bodied and willing worker. If this great test of private enterprise lies just ahead, is it not reasonable that every sensible business man in the country should energetically support and defend those industries which can create and provide great numbers of real jobs—not synthetic jobs—after peace returns?

* * * * *

Direct employment by the railroads is closely related to the tonnage of freight and the number of passengers to be moved from one place to another. In few years has railroad employment fallen below the million mark. The average number of railroad workers for the past twenty years has been around 1,200,000. If, as the experts predict, the volume of post-war railroad business will eventually level off at about the 1941 volume, the railroad industry should be able to provide jobs for 1,200,000 workers—a sizable chunk of real American jobs, encompassing every known profession, skill and trade—with not a leaf-raker or a boondoggler in the lot.

Normally, the railroads of this country buy enough locomotives, freight cars and passenger cars to provide regular jobs for another million American workers. In normal years, the railroad industry buys 25 per cent of the nation's production of coal; about 13 per cent of all iron and steel products; 11½ per cent of all the timber cut; and more than 9 per cent of all the petroleum production, including fuel oil and gasoline. Translating these facts into terms of jobs, prosperous railroads indirectly provide jobs for still another group of more than 400,000 American workers.

We have here in this one great industry the key to jobs for millions of men and women in post-war America. In spite of this, there are some people in this country who have been saying in effect:

"Who cares about the old goose that lays the golden eggs? Let's fence it off in a corner of the barnyard. Let's tie it up and give its feed to the other geese. Soon it will starve to death. Then we'll cut it up and get all its golden eggs for ourselves."

Too many people have been indifferent to the fate of the railroads; too many well-meaning people have been dazzled by their hopes for new forms of transportation to bother very much about the familiar old goose that lays the golden eggs.

* * * * *

I can't get very excited when I read about the billions of dollars that some people propose to spend on superhighways after the war is over; about the airports that Uncle Sam (that's just another name for you and me) is planning to build in everybody's back yard; about the great inland waterways that they hope will turn prairie towns into bustling seaports. If these things can be done in the traditional American way of fairness to all concerned, I'm for them. But I'm not for them if they operate to destroy fair competition and tend to create more gross inequalities as between various kinds of transport.

I believe that this nation has the right to the best in transportation, that it has need for all the forms of transport that we know today; that it can, and will, support these transportation agencies to the extent of their economic justification. If we decide to pour billions of our dollars into new facilities for transport, let's see to it that all those who employ them for profit pay a fair and reasonable charge for their use so that they may be truly self-liquidating ventures insofar as they are used for private gain. Let's stoutly refuse to plunge blindly into any gigantic transportation project under the guise of providing temporary, make-work jobs if, by so doing, we succeed only in killing the goose that lays the golden eggs.

This article is a condensation of an address presented to the Traffic Club of New York on November 15.

Rio Grande Has Longest C. T. C.

The territory between Dotsero, Colo., and Helper, Utah, includes 284 miles which is mostly single-track line

THE Denver & Rio Grande Western has completed the installation of centralized traffic control on 43.6 miles of single track between Grand Junction, Colo., and Cottonwood, Utah, this being the final portion of a total of 284 miles of C.T.C. between Dotsero, Colo., and Helper, Utah, which is the longest continuous C.T.C. territory on any railroad. Two lines from Denver converge at Dotsero, which is the east end of the C.T.C. One line extends from Denver south through Colorado Springs to Pueblo, then west through the Royal Gorge of the Arkansas river, over the Continental Divide at Tennessee Pass and down the Eagle River canyon to Dotsero. A second route extends west from Denver over the Continental Divide through the Moffat Tunnel and down the Colorado river via Bond, Colo., to Dotsero, to connect with the Royal Gorge route. From Helper, Utah, the west end of the C.T.C., double track extends over the Wasatch mountains for 75 miles on the route to Salt Lake City, Utah. Thus, beyond the east end of the 284 miles of single track C.T.C. there are two single track routes, while beyond the west end there is double track.

Grand Junction, 107 miles west of Dotsero, is a division point. On the Royal Gorge route the engine district is between Grand Junction and Mintern, while on the Moffat Tunnel route the engine district is between Grand Junction and Bond. Trains from and to both routes are run through between Dotsero and Grand Junction and, therefore, this section handles more train movements. Traffic increased during the war so that on the average there are from 12 to 14 passenger trains and 20 to 22 freight trains daily on the 107-mile section between Dotsero and Grand Junction. In addition, there are from 5 to 8 light engine helper moves between Dotsero and Funston. Between Grand Junction and Helper there are from 10 to 12 passenger trains and 20 to 22 freight trains, in addition to 5 or 6 mine run trains which use the main line between Mounds and Helper.

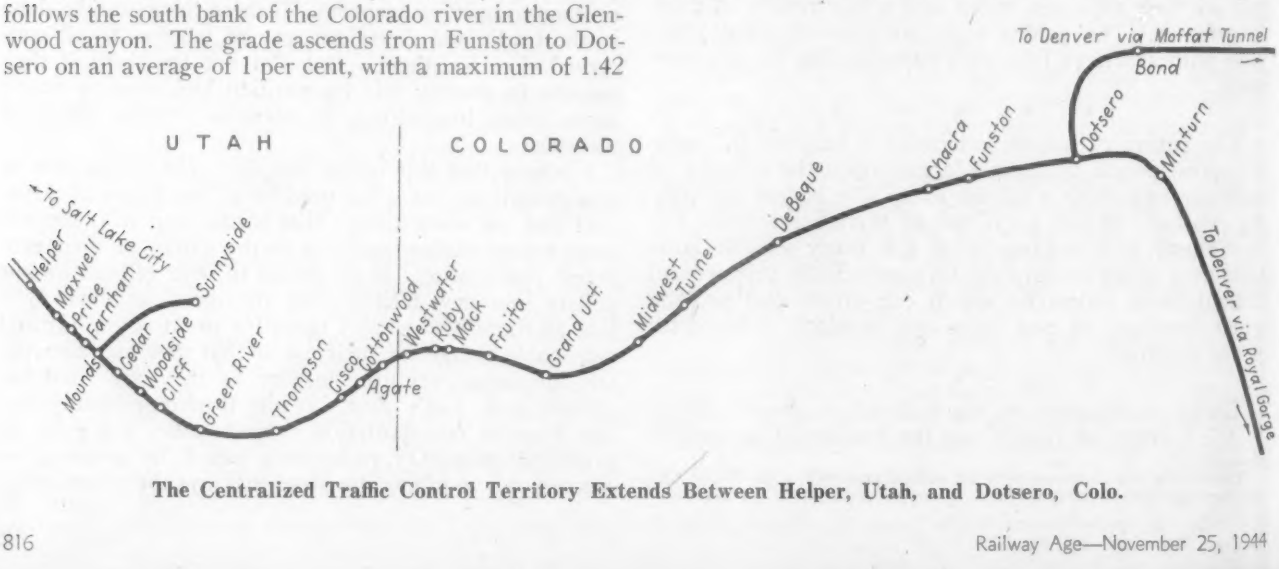
Difficulties in Glenwood Canyon

Between Dotsero and Funston, 19 miles, the railroad follows the south bank of the Colorado river in the Glenwood canyon. The grade ascends from Funston to Dotsero on an average of 1 per cent, with a maximum of 1.42 per cent. The curves are numerous and range up to 12 degrees, which require speed restrictions to 18 m.p.h. for freight trains and 27 m.p.h. for passenger trains. For many years this section of line in the Glenwood canyon has been the source of train delays, and in order to relieve the congestion centralized traffic control was installed in 1941 on 25.6 miles between Dotsero and Chacra, which is the first siding west of Funston. Also in 1941 C.T.C. was extended on 8.1 miles eastward from Midwest to Tunnel, which, added to the project between Midwest and Grand Junction installed in 1937, made 21.9 miles of C.T.C. eastward from Grand Junction to Tunnel. This left 59.8 miles between Tunnel and Chacra without C.T.C. In this territory the railroad runs down the open valley of the Colorado river, the line being at river grade, which is about 1 per cent practically all the way. The curvature is comparatively light, not exceeding 6 deg., except for one curve of 7 deg. 30 min. As a result this is fast track as compared with the section between Funston and Dotsero.

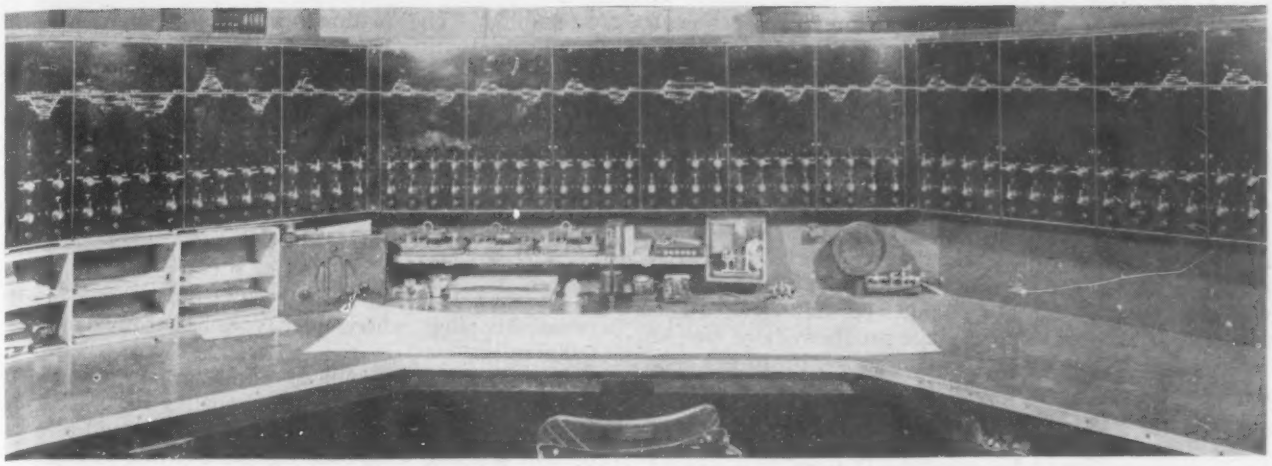
Traffic Characteristics

When the war caused rapid increases in traffic experience showed that there was very little difficulty in keeping the trains moving on the C.T.C. territories, but that, insofar as the Dotsero-Grand Junction territory was concerned, the major train delays were on the 59.8 miles between Chacra and Tunnel where timetables and train orders, as well as hand-throw passing track switches, were still in service. For this reason centralized traffic control was authorized and installed on this section in 1942, thus completing the entire 107 miles between Dotsero and Grand Junction, the final section being placed in service on October 15, 1942.

During 1942 traffic increased to more than double that for corresponding months of the year previous and, therefore, centralized traffic control was extended on the remaining single track main line as fast as possible during the year 1943 and 1944. From Grand Junction west through Mack, about 20 miles, the railroad is in open



The Centralized Traffic Control Territory Extends Between Helper, Utah, and Dotsero, Colo.



The Machine at Green River, Utah, Controls 133 Miles of C. T. C. on Single Track

level valley with light grades and curvature. Between Ruby, Colo., and Westwater, Utah, 15.3 miles, the railroad is along the north bank of the Colorado river in Ruby canyon. At Westwater the railroad leaves the river and ascends the valley of a creek to Cottonwood, the grade being 1.10 per cent for 4.8 miles. This is the ruling grade westward between Grand Junction and Helper and limits the tonnage rating of the Class L-131 locomotives to 4,400 tons between Grand Junction and Mounds, as compared with 5,100 tons eastbound between Grand Junction and Funston, and with 3,500 tons between Funston and Dotsero.

Between Cottonwood and Helper the railroad crosses rolling open desert country, the curvature being comparatively light. The maximum grade eastward is about 1 per cent for 25 miles between Green River and Thompson. The maximum grade westward is 1.11 per cent for about 11 miles between Woodside and Cedar. In 1942 new coal mines were opened near Sunnyside, Utah, which is on a branch line that connects with the main line at Mounds. A maximum of about 250 cars of coal are moved westbound and the same number of empty cars are moved eastbound daily over the main track between Helper and Mounds. This traffic is handled by special mine run trains working out of Helper.

Signal and Switch Changes

Because of this extra coal traffic, in 1943 centralized traffic control was started at Helper and extended eastward, the entire 138 miles between Helper and Agate being completed that year. Starting in 1944, the remaining 48.9 miles between Agate and Grand Junction was equipped, thus completing centralized traffic control on the entire 284 miles between Dotsero and Helper on September 1, 1944.

Color-light automatic block signaling had been in service since 1927 and 1928. When converting to centralized traffic control the signals at the ends of the sidings were rearranged as required and the intermediate signals were respaced. Where power switch machines were to be provided at the ends of sidings the installation included new No. 15 turnouts with 33-ft. curved Sampson switch points, good for train speeds of 37 m.p.h. when making diverging movements. For a freight train of 75 cars the difference between 15 m.p.h. and 37 m.p.h. for a train length saves 87.8 seconds.

Changes were made to eliminate as many main-line switches as possible. For example, the stock pens and loading tracks at Silt and DeBeque were moved to connect with the passing track rather than the main line. Between Funston and Palisade three passing tracks were removed, and between Grand Junction and Helper two were removed.

Traffic Increases

Using the original C. T. C. control machine installed in the office at Grand Junction in 1937 new panels have been added as required when C. T. C. was extended, until now this one machine controls on 72 miles from DeBeque through Grand Junction to Cottonwood. Similarly, panels have been added to the machine installed at Funston so that this office now handles the C. T. C. on 74 miles between Dotsero and DeBeque. The new machine at Green River controls the 133 miles between Cottonwood and Helper. The chief dispatcher of the division is located at Grand Junction. A dispatcher on each trick at Grand Junction handles the C. T. C. machine for the Cottonwood-DeBeque territory and has jurisdiction of the controller-operator in charge of the C. T. C. machine at Funston. A dispatcher on each trick at Green River has charge of the C. T. C. machine for the Cottonwood-Helper territory, 133 miles.

Approximately twice as much traffic was handled between Dotsero and Grand Junction in May, 1943, as in

Statement of Train Performance Between Agate and Helper, July 20 to 26, 1943, Compared with March 24 to 30, 1944

	Freight		Passenger	
Westward	Before	After	Before	After
Number of Trains	74	69	30	27
Elapsed Time	625 hr. 52 min.	436 hr. 11 min.	114 hr. 57 min.	101 hr. 11 min.
Mileage	9035.4	8424.9	3663.0	3296.7
Average Speed	14.4	19.3*	31.9	32.6
Average Time per Train	8 hr. 27 min.	6 hr. 20 min.	3 hr. 50 min.	3 hr. 45 min.
Eastward				
Number of Trains	66	67	29	32
Elapsed Time	459 hr. 31 min.	388 hr. 5 min.	108 hr. 9 min.	103 hr. 13 min.
Mileage	8058.6	8180.7	3540.9	3709.0
Average Speed	17.5	21.1	32.7	37.8
Average Time per Train	6 hr. 57 min.	5 hr. 47 min.	3 hr. 43 min.	3 hr. 14 min.

* If 23 hours deducted account 4 engine failures average speed would increase to 20.3.

May, 1941. The increases amounted to 97.3 per cent in freight gross ton-miles and 103.5 per cent in passenger-car-miles. In handling this heavily increased business, the Rio Grande was faced not only with the problem of arranging meets and passes on a single-track district, but also with making the best possible use of a limited supply of locomotives. This involved heavy loading of trains over this district, with smaller locomotives than had previously been used here. The result was that the average train speed over this district was reduced materially, but the efficiency in power utilization was improved. In spite of a 59 per cent increase in train miles per day (freight and passenger combined), the average productivity of freight locomotives on this district was increased by 16 per cent as measured by gross ton-miles produced per pound of tractive effort per hour between terminals. Based on a study made in 1943 the average overall time of freight trains between Grand Junction and Dotsero was reduced about two hours as compared with corresponding months in 1941.

After the C. T. C. had been in service several months on the 126 miles between Helper and Cisco a comparison was made of train operations for six days in July, 1943, as compared with a similar period in March, 1944. As shown in detail in the accompanying table the average speed of westbound through freight trains increased from 14.4 m.p.h. to 19.3 m.p.h., thus reducing the overall time from 8 hours 27 minutes to 6 hours 20 minutes. For eastbound through freight trains the average speed increased from 17.5 m.p.h. to 21.1 m.p.h., thus reducing the overall time from 6 hours 57 minutes to 5 hours 47 minutes. On the average westbound passenger trains saved 5 minutes and eastbound passenger trains 29 minutes. In addition to the through trains, an average of 4.5 local and short-turn mine trains were operated in each direction daily, on which there was no appreciable saving in time while using the main line between Helper and Mounds.

If the eight passenger trains are on time they are all on the territory between Cottonwood and Helper during the third trick. On one occasion recently there were 21 trains on this 133 miles at one time, of which 9 were passenger and 12 freight trains. In the course of 3.5 hours 19 non-stop meets were made.

This centralized traffic control was planned and installed by signal forces of the Denver & Rio Grande Western under the direction of B. W. Molis, signal engineer, the major items of equipment being furnished by the General Railway Signal Company.

U. S. Rail Men

(*Continued from page 809*)

capable of doing good work if given efficient training and supervision. The men are eager to learn and take pride in their work. Few enginemen are to be found anywhere who are more skillful in handling trains, especially on mountain grades. Similarly, the track gang to which a demonstration electric tie-tamping outfit was given, soon built up its output from an initial 600 ft. of track tamped a day to 3,300 ft. and the men handling the tools were so proud of their responsibilities that they would scarcely lay them down for lunch for fear other men in the gangs would get possession of them.

The economic well-being of the Republic of Mexico requires an efficient system of rail transportation. Its future is bound to it, and a fine and efficient system of railways is not difficult of accomplishment. Quoting from a report made by O. M. Stevens, former chief of the United States Railway Mission, to American Ambassador Messersmith, "The National Railways system can be anything this nation wants it to be. No standard is beyond its reach. It has everything with which to attain the high standards of service so much needed in the nation's interests. It is folly to think that this railroad must be inferior or second rate."

Coming Locomotives

(*Continued from page 812*)

between shoppings, where older types had trouble making 100,000 miles.

An oft-mentioned handicap of steam locomotives is the necessary stops for water and coal. Proper location of fueling, watering and servicing facilities could also be profitably studied. One road reports a saving of 55 minutes on each manifest freight train at two terminals as a result of arranging for the taking of coal, water and sand; the dumping of ash pans and servicing at one spotting of the locomotive. Only four minutes are required to take 15,000 gallons of water and 30 tons of coal. Tenders with coal capacities of 42 tons have been built and this makes possible 600 mile runs with the largest power.

Railroad managements with a real desire to save money should examine with a critical eye their utilization of steam power, rather than look entirely to the steam locomotive designers to furnish some super-locomotive that will automatically reduce their costs.

* * *

S. A. L. Films Its Files

Important Documents and Correspondence Are Given Space-Saving Permanency by Being Photographed on 35-Mm. Film, a 3-In. Roll of Which Can Record the Contents of a 4-Drawer Filing Cabinet. The Job Under Way at S. A. L. Offices in Norfolk, Is Being Done by the Microstat Corporation

Victory and Materials' Control

A brief discussion of W. P. B.'s plans for the period following V-E Day and what may happen to the C. M. P.

By S. W. Anderson

Vice-Chairman, War Production Board

DURING 1942 the building of war plants proceeded at a fever pitch, production wheels began to hum, and munitions started to pour from shipping room doors. By November, munitions production was proceeding at the rate of $40,000,000,000 per year. This was the month in which the Controlled Materials Plan was announced by the W. P. B. United States munitions production climbed steadily until, in 1944, it has reached the annual rate of about $65,000,000,000—a figure $25,000,000 higher than in November, 1942.

What Consequences of Germany's Defeat?

The predicted decline in munitions production following the defeat of Germany will bring us back to a level of war production comparable to that of November, 1942; about $40,000,000,000 per year. This cutback represents over four times the value of the output of the entire automobile industry in its best peace-time year.

What will develop after V-E Day? We will get a reduction of $20,000,000,000 to $25,000,000,000 annually in munitions contracts. These will not be uniform, nor will the cuts come all at once. It is our impression that the curve of procurement will decline quite rapidly. The impact of these cancellations, down through sub-contractors and through the pipeline of materials and components, will be very widespread. Several million war jobs will disappear. Some released workers will go back to school, back to housekeeping, and back to well-earned retirement from which they came. The labor-starved service trades doubtless will absorb released war workers, as will the inevitable shortening of the work week.

The impact of the cut on the available supplies of materials and components also will be quite uneven and it, too, is hard to measure accurately. In some fields the case is clear. Undoubtedly, there will be ample capacity to produce steel, aluminum, magnesium, zinc, synthetic rubber, machine tools, most bearings, gasoline engines, radio equipment, and many other products. In a few fields, we know that shortages will continue. These will include tin, natural rubber, certain chemicals, some types of forest products and textiles, some electrical equipment, perhaps, and a number of other components.

In the field of materials and components it is important to keep in mind that the great expansion of American industry in the last three years has been chiefly, although not exclusively, in the realm of heavy metal goods production. Many of these facilities are not adapted to peacetime production. The predicted cut of $25,000,000,000, therefore, is not a good yardstick for measuring accurately the elbow room which will develop in materials and components after victory in Europe. The armor plate mills, some of the aluminum plants, many of the heavy equipment facilities are not designed or intended to produce the lighter products which civilians buy. Thus there will be "facility evaporation" as well as "labor evaporation." The W. P. B. is endeavoring to assist the services in deciding the cuts to make in order to free, for civilian production, those facilities which most likely will be needed in resuming private civilian production.

In spite of these two forms of "evaporation" after Victory in Europe, a great many companies soon will find themselves in position to undertake non-war work, and the workers and facilities to carry out this work will be at hand. As we in the W. P. B. see it, our job in government is to stand aside as rapidly as we can, to permit business to resume production of civilian articles as fast as it is prepared to do so.

We have on our books today approximately 500 orders limiting or controlling the production of various products and materials. A careful examination has been made of all of these orders in an attempt to determine, as accurately as we can, which no longer will be needed after V-E Day. We have scheduled tentatively for revocation about 350 control orders. Those to be retained are heavily concentrated in the fields where we are quite clear that continuing shortages will require the continuation of close allocation or other types of control—principally in the textiles, leather, forest products, container and chemical fields—a total of about 100 of the 150 to be retained.

We propose to watch carefully the operation of these retained orders so that they may be revoked as soon as it is clear that they are no longer required.

The C. M. P. will be abandoned in an orderly manner. We have tried to devise as smooth a method of abandonment as possible so that there will be a minimum reshuffling of order boards at the mill level and as little paper work as possible commensurate with the need to give a prior claim to the continuing war demand.

Priority Ratings to be Overhauled

The priority system of ratings will be overhauled entirely with a provision for a proper transition period to avoid chaotic and unnecessary paper work. The main priority instrument after V-E Day will be a single priority rating reserved almost exclusively for military procurement. In addition, we will retain our present AAA rating, which has been and will continue to be used primarily for breaking military bottlenecks and is tantamount to a motorcycle escort through traffic.

We are, however, retaining a number of controls for ready use, if necessary. The board's power of directive is one of these. Such directives doubtless will be used to clear up unpredictable maldistribution and mal-

NOTE—This article is an abstract of an address by Mr. Anderson to the Marketing Conference of the New York Chamber of Commerce, at the Waldorf-Astoria Hotel, New York, on October 23, 1944.

production headaches to the extent that the war interest is affected. The power to schedule deliveries, order by order, in individual plants, as we now do under Order M-293, will be retained and will be made in fact more flexible. We hope not to have to use it, but, in the interests of the defeat of Japan, there may be times when its use will be essential. The W. P. B. intends to preserve its industry division structure together with industry advisory committees so that wherever a proper need for help arises, the divisions will be ready to serve.

The controls we will retain are but faint shadows of the controls now exercised by the W. P. B. In the great area which will not be under control and in those large fields where surpluses of materials and components will develop quickly, we propose to follow a hands-off policy.

The relationship between the powers of the W. P. B. and those of the O. P. A. are far from simple. There is no doubt that within the limitation of the legal powers of the W. P. B., some W. P. B. action may be necessary in support of the clear mandate of Congress to O. P. A. to fight against inflation.

The recently passed War Demobilization and Reconversion Act definitely imposes upon the executive agencies of the government the duty to see that small business gets a fair share in obtaining materials where such materials are being allocated by means of controls.

Through the industry divisions of the W. P. B., we are endeavoring to develop a time-table of the various preparatory steps which the several industries faced with a reconversion problem must take to reach a given degree of reconversion. These steps include the building of experimental models, which is now permitted; the engineering work involved in laying out new production lines, and, in some cases, new construction; the perfecting of plans for clearing buildings now being used for war production; the accumulation of inventories of materials and components necessary to begin production and things of a similar nature. The industry divisions are planning to consult with their industry advisory committees and their labor advisory committees on these matters to get the benefit of their first-hand knowledge. Every effort will be made to take these steps before V-E Day if it can be shown that they can be undertaken without damage to the war program as it stands today.

We are planning, within the general framework which I have described, to feel our way along. We will examine, in a sympathetic way, the problems which will rise to the surface in large volume and, out of these, I think, there will be forged a reasonable and helpful practice, but I can assure you it will not be paternalistic or discriminatory. We have no illusions that the W. P. B. can or should serve as a substitute for vigorous self-help and private ingenuity. We do not propose to sustain inefficiency against efficiency.

There has been much loose talk about the problems of reconversion; about the obligations of the government; about the needs of business and what may be expected. There is no magic wand. The government is not in the manufacturing business for civilian account and, in my opinion, it does not propose to go into it. It is our policy to stand aside and do what is properly in the power of the government to encourage the only Americans who do possess the magic wand, namely, the business men of the country. Their resourcefulness, their ingenuity, their enterprise, their hope for profits, their ambition, their inventiveness, their capital,—these are the wands which must be waved and you are the ones who must do the waving.

Reason, Replacing Emotion, Would Resolve South's Rate Troubles

To the widely-read newspaper column of John Temple Graves in the Birmingham Age-Herald, Alvin Vogtle, chairman of the Southern Shippers' Conference, has contributed an intepretation of the South's present situation regarding freight rates, reading in part as follows:

Dating back to heartaches and bitterness of the Civil War and Reconstruction period, the South is moved by emotions, not logic, in a sectional appeal such as alleged "Yankee" freight rate discriminations. This catch phrase "freight rate parity" contemplates bodily transfer to the South of the Northern freight rate level, a system of rates wholly unsuited to our different economy, products and distance to Northern markets. The agitation has led to introduction of bills in Congress for so-called "parity," meaning rigid mileage rates, bringing dismay to business men everywhere, South, North, East and West; and even the Department of Agriculture sounds a "Stop, Look and Listen" warning to Southern and Western farmers.

The South actually has a very favorable system of freight rates. Seventy-five per cent of its traffic moves at rates not higher than the Northern level—in fact, much of it at a lower level. Simply stated: (a) Our manufactured products (competitive with like products of the North), and our products of agriculture, forest and mines, move into the North at the Northern level of rates or less. (b) Our rates within the South are distinguished by low rates on raw materials to Southern manufacturing points (primarily to aid our manufactured products to overcome distance disadvantages to Northern markets, but these low assembly charges also aid manufacture for Southern markets). (c) The rates on Northern manufactured products and mid-Western agricultural products to the South are at the Southern level.

Parity would change all this—and to the advantage of the North, not the South. There would be rate reductions to the North, it is true, for our "unborn" industries, that is, products not now manufactured in the South. But parity would also mean increases to the North on many of our most important present products. Parity likewise would increase rates within the South on raw materials to processing points. And parity would mean greater reductions to the South from the North on manufactured products and from the mid-West on farm products than within the South.

This political assault, this setting up of a scapegoat, obscures the real problem. It follows the pattern of the South's constant picturization as a victim of injustices, highlighted by the slanderous label "Economic Problem No. 1," discrediting us with outsiders and bringing a spirit of defeatism to our people, aptly described by John Temple Graves as "the whine and minus sign in Southern psychology." The truth is that the South possesses opportunities and advantages unsurpassed elsewhere in the civilized world. They explain its fabulous progress in my own business lifetime.

Today the South and the hour have met, if we do not simply sit back and await the "abundant tomorrow." We have the opportunity of progressing through war-acquired plants and new skills, with accumulated savings representing vast consumer purchasing power, and a pent-up demand for manufactured products far exceeding the postwar productive capacity of established plants here and elsewhere. Now is the time to increase this manufacture here, either by Southern companies or through Southern location of plants by the established Northern producers to serve this growing market, following the earlier example of the automobile tire manufacturers, now normally producing in the South more tires than used here. The South needs these industries. It will fulfill Sen. Bankhead's expressed dream of that ideal combination of industrial payrolls and farm security—possible in the South as nowhere else. But we do not encourage such diversification of manufacture and farming if we now increase rates on raw materials and fertilizer within the South and reduce rates to the South on Northern manufactured products and on mid-Western farm products.

Property Taxes Need Closer Scrutiny

Such levies bear disproportionately upon the railroads and a post-war increase impends—Wide variations between states

By JOHN W. BARNES

Tax Economist,
Iowa State Tax Commission

GENERAL war conditions, the powerful bargaining position of labor, and the growth of subsidized and competing modes of transportation—pipe lines, motor trucks, waterways, and air lines—have placed the railroads in an unenviable tax position. Railroad taxes have a stubborn inflexibility that is matched only by the rigidities of the rate structure.

This results in a combination that delays and postpones effective adjustment to current cost conditions. One of the most inflexible tax items is the property tax bill.

Inequality of Taxation

The recent report of the congressional Board of Investigation and Research showed conclusively that in normal times *ad valorem* taxes constitute the major portion of the railroad industry's tax bill. Choosing the year 1940 as fairly representative, the report listed railroad tax accruals for that year as $425,929,000, of which $200,734,000, or 54 per cent, were *ad valorem* property tax accruals. This table of 1940 tax accruals for all major carrier groups shows that intercity truck lines' accruals amounted to only $25,769,000; intercity bus lines', $16,229,000; water carriers', $24,786,000; air lines', $4,151,000; and pipe lines', $43,324,000. The railroad property tax bill is, thus, nearly twice the total tax bills of all other competing carriers; $200,734,000 as against $114,259,000. The Board's discussion of the impact of various types of taxes on the several carriers deals with the *ad valorem* property tax, pointing out that this has traditionally been the heaviest tax on railroads. It has a comparable impact on pipe lines, but rests very lightly on motor carriers, water carriers, and air lines.

There is reason to focus attention on this fundamental aspect of railroad taxation, and especially so now, because of the disparity between charges levied on railroads and those extracted from other modes of transportation, together with the disparity between the *quid pro quo* which other agencies of transportation receive for their tax payments and the absence thereof in the case of railroads.

With poor-relief expenditures low and public construction at a standstill, and with rising sales, income, cigarette and beer tax revenues, most state and local governmental units are not now confronted with serious revenue problems. On the whole, however, property taxation has not been alleviated by these war conditions. In fact, most carriers report from 5 to 20 per cent increases in local tax rates throughout their operating territories.

Property Taxes Will Rise

It is time to recognize that *ad valorem* taxation will increasingly become the major source of state and local revenues as we move into the post-war period. The war has accentuated the trend toward exclusive federal tax jurisdiction in many fields. Should the federal government continue to expand its corporate and personal income tax structure, it is doubtful if the states can continue income taxation as important source of revenues. The luxury and excise taxing power seems vested almost exclusively with the federal government, and it appears from time to time that even the direct sales tax field may eventually feel the hand of the federal treasury. Prior to 1934 most state and local units relied chiefly on the *ad valorem* property tax for governmental revenues. The income and other special taxes became a part of state and local tax structures primarily as property tax relief measures. It is an axiom of public finance, however, that, given the money, politicians will find a way to spend it.

The net result of tax legislation of the past decade, with special reference to the federal trend, can only be to lead to an increase in *ad valorem* property taxation.

It would be well for railroad management to recognize that the war's end will materially increase their local tax burden, because schools, municipalities, and the states will have to catch up on construction programs. States may have to aid, and supply employment for, those now in the military service and war production. This will take money which state and local jurisdictions cannot collect from any other source than *ad valorem* property taxes.

The report of the Board of Investigation and Research, referred to above, concluded that the railroads were overtaxed in terms of their total tax load when compared with other competing transportation agencies. The cause of this condition is to be found in the present tax structures of our many local taxing jurisdictions. The *ad valorem* property tax statutes of most states, viewed collectively, involve economic if not legal discrimination against the railroads.

How Railroads Are Taxed

Railroad operating property is taxed every year in most jurisdictions on the basis of the so-called "unit method" of assessment. State tax commissions or similar bodies value the railroad operating system as a unit and then allocate a particular portion thereof to their own states. The "system value" is usually found by: (1) capitalizing the net operating income at rates varying from 4 to 7 per cent; (2) averaging the market quotations of the carriers' outstanding securities for five years past; and (3)

TABLE I

RAILROAD ASSESSMENTS IN TWELVE STATES

Computed System Value In Each State From Which Allocation Is Made

Name of Railroad	Actual System Value	State I	State II	State III	State IV	State V	State VI	State VII	State VIII
A	$184,663,048	$257,994,619	$114,504,075	$175,934,188	$180,666,048	$200,000,000	$177,537,594	$212,927,757	$239,605,704
B	184,716,134	346,273,008	165,716,340	338,753,434	.....	227,764,286	212,371,134	312,310,491	.....
C	218,431,080	216,302,523	.....	.....	660,578,461	357,142,857	.....	201,612,903	.....
D	14,813,097	.....	13,218,690	.....	34,281,783	.....	22,566,372	.....	28,461,538
E	274,776,119	.....	236,612,933	.....	.....	367,268,682	271,832,911	438,040,346	.....
F	321,834,559	401,068,700	247,124,792	.....	328,311,908	.....	288,629,032	323,992,995	341,553,589

Name of Railroad	Actual System Value	State IX	State X	State XI	State XII
A	$184,663,048	.....	.....	.....	.....
B	184,716,134	$193,341,739	$199,489,565	$253,507,561	$284,436,131
C	218,431,080	207,145,769	.....	.....	.....
D	14,813,097	.....	.....	.....	.....
E	274,776,119	.....	.....	262,040,169	388,479,571
F	321,834,539	.....	261,077,791	278,531,154	.....

depreciating the Interstate Commerce Commission's figures on reproduction cost (Ex Parte 148, based on 1919 survey). These three figures are then averaged together and the resultant sum is the "system value" of the railroad. Allocation of a portion of this value to a given state is usually made by applying a percentage figure to that total which is the mathematical result of certain computations based on:

1. The proportion of gross earnings within the state to the total gross earnings of the system.
2. The proportion of the revenue traffic units in the state to the total for the system.
3. The proportion which the roadbed-mileage (either all track-mileage or main track-mileage or both) within the state bears to the total system mileage.
4. The proportion which the car and locomotive-mileage within the state bears to the total for the system.
5. The tons of originating and terminating traffic within and without the state.
6. The proportion of reproduction cost, with additions and retirements, of the physical property in the state to the I. C. C. total for the system.

While the "unit rule" is sound in principle, the net effect of its application has been overtaxation and double taxation of railroad properties. Take the case of Railroad B as shown below in Table I, for example. In 1944 this railroad had a full system value of $186,716,134, a figure agreed upon between company experts and I. C. C. appraisal engineers. Yet the computed system values in each of the states where Railroad B operates vary from $165,314,617 to $346,273,008, and the total full value tax base of all states taken together amounted to $229,111,895—a rough over-assessment of 37 per cent if the collective opinion of the company's experts and I. C. C. appraisal engineers means anything. The allocation of these "system values" to a particular state makes the situation even more confusing, if anything, as indicated in Table II. There is abundant evidence, as any railroad tax officer knows, to show that railroad properties, operating and non-operating, are assessed higher in each locality than locally assessed "home owned" property.

TABLE II

Name of Carrier	Total of Actual Assessments (All States Together)	Actual System Value
A	$288,112,516	$184,663,048
B	229,111,895	186,716,134
C	232,352,597	218,431,080
D	28,825,776	14,813,097
E	226,901,127	274,776,119
F	329,289,977	321,834,559

It is apparent, therefore, that the "unit rule" method of *ad valorem* property taxation has not entirely eliminated assessing in terms of that sacred bull, "last year's assesment," or his handmaiden, "the judgment of the commission." The reasons for this condition are manifold:

(1) State tax officials are subjected to political pressure from local governmental units for stable and adequate revenues.
(2) Many railroads have in the past and some still regard the size of their tax bill as relatively immaterial, since a larger assessment, they reason, promotes good will among local governments and can be absorbed in lower tax rates approved by the regulatory body.
(3) Once an assessment and tax rate is established, local tax administrators are reluctant to cut expenses and lower millage rates, especially in the case of an "alien" taxpayer.
And (4) railroad assesments are such a large part of the average local tax base as to make the railroads almost singly responsible for the financing of schools and public roads in many instances.

Railroad assessments are relatively more important than ever before. Therefore, railroads today are required to prove their case in the most conclusive terms before they can obtain consideration from assessment officials, and in many cases the "unit method" of computation resolves itself into nothing more than rationalization of a predetermined assessment. The final gesture of resistance to reduced railroad assessments is the frequently reported fact that petitions for abandonments of unprofitable railway lines are consistently opposed by the localities they serve because of the loss in tax revenue.

Uniformity Desirable

There is obviously a great need for uniformity among the states in *ad valorem* property tax procedures. The property tax structure of most states is antiquated and burdensome, and the history of property tax administration records only changes in elective personnel, seldom changes in property tax statutes and rules. The recent model statute for the taxation of railroads and other utilities proposed by the Section on Taxation of the American Bar Association is definitely a step in the right direction. The National Tax Association, working closely with railroad tax officers, is responsible for many good suggestions in recent years. It is difficult, however, to obtain revision of existing property tax statutes for the reasons already outlined. The railroads have probably contributed more to the development and improvement of *ad valorem* property tax administration through study, research, and close cooperation with tax officials than has any other single industry.

Revised Methods Needed

Much attention has recently been focused on the post-war federal fiscal policy with the view of consolidating and limiting the federal government's corporate income and surfax structure to avoid double taxation of income and prevent the curbing of investment saving and industrial expansion. No doubt, much remains to be done here, but it seems highly probable that the railroads may lose all they might possibly gain from improvement in federal fiscal policy by neglecting to work with state and local governments for much needed reforms in our property tax system.

Far-reaching developments in the field of transportation are now in the making and now is the time to revise property tax statutes and obtain an orderly, equitable, and flexible *ad valorem* property tax system which will not discriminate against any particular industry or class. A way must be found to assess the costs of governmental benefits to *all* competing agencies of transportation in order to distribute the costs of the benefits derived. It would seem that we are making little progress in the field of local taxation when one views the case of *Northwest Airlines v. Minnesota*, for here one finds ample evidence that we must rewrite our tax laws and we must foster and develop good assessing practices. The railroads' combined efforts are needed in working for this goal.

New Book . . .

Railroads at War, by S. Kip Farrington, Jr. 320 pages. 8½ in. by 5¾ in. Bound in cloth. Published by Coward-McCann, Inc., New York. Price, $4.00.

Reflecting in text and pictures the almost unbridled enthusiasm of this author for railroading in general, for train operation in particular, and for the steam locomotive in action above all else about a railroad, this well-designed and liberally illustrated book will warm the heart of the railroad enthusiast who goes in for locomotive data and technical background.

In a previous book (reviewed in *Railway Age* of March 13, 1943, page 520) mention was made of the writer's "dynamic" style and energetic and high-spirited treatment of even the most prosaic aspects of train operation. In the present volume he has continued to employ this general technique, but possibly with somewhat more restraint. An editor of "Field & Stream" and a writer on various phases of outdoor life, he has devoted a fluent pen to what must have been the pleasant task of recounting some of the exciting and informative experiences that fell his way during 25,000 miles of travel on locomotives and other trips on trains of different types while collecting the material for this book.

The contribution which the railroads are making to the winning of the war is emphasized in both text and pictures—for example, in accounts of troop movements, iron ore and oil train operations, and the accelerated flow of regular freight. Technological improvements—roller bearings, car retarders, C. T. C. installations, for example—and progressive operating practices—such as long-distance engine runs, introduction of road Diesels, and intensive utilization of single track lines—come in for review. But the bulk of the text, as well as a majority of the 108 pictures, deals with locomotives in action.

There is a brief introduction by Secretary of the Navy Forrestal.

Railroads-in-War News

Allots Railroad Steel for 1945 1st Quarter

W. P. B. allocations to O. D. T. include materials for 105 passenger-train cars

Materials for the construction of 105 passenger-train cars are included in allocations of 1,254,838 short tons of carbon steel and "proportionate amounts of alloy steel, copper and aluminum," which have been made for the first quarter of 1945 by the War Production Board to the Office of Defense Transportation, as claimant agency for domestic transportation under the Controlled Materials Plan. Freight car materials have been made available for the construction of "up to a maximum of 2,300 box cars," while 507,000 tons of carbon steel have been allocated for replacement rails.

The total allocation of 1,254,838 tons, which provides for highway and inland waterway transportation as well as railroads, was short of the O. D. T. request for 1,585,847 tons, but was above the 1,039,100 tons allocated for the current quarter. Replacement rail suffered one of the big cuts. O. D. T. requested 600,000 tons, "the entire controlled-cooled capacity," but was advised that the 507,000 tons would be the "total available capacity less military and export 'must' requirements."

More Coaches Later, Maybe—The 105 passenger-train cars for which materials were allotted are "now on schedule," the O. D. T. announcement said, adding that "the balance of O. D. T.'s program of 250 cars per quarter will be started as soon as governmental authorities approve the manpower requirements." The 105 will be "chiefly day-coaches, with some baggage, mail and express cars."

The allocations for the 2,300 box cars are contingent upon the placement of orders by the railroads with car builders by December 1. "O. D. T.," said the announcement, "advised W. P. B. that these cars are necessary because of the existing shortage of box cars and the anticipated shortage next year." It is pointed out that cars built out of the first-quarter allocations would be delivered in the second quarter, and O. D. T. "is also requesting the railroads to place orders before January 1 for additional box cars for delivery in the third quarter, materials for which will be made available in time to complete the program."

Eases Up on Trucks—Meanwhile carbon steel requirements for locomotives were also met "with amounts sufficient to cover production schedules." That is also true of requirements for trucks, integral buses, street cars, trolley coaches and truck trailers. An allotment was made for the production of light trucks at the rate of 10,000 units per quarter, the first authorization for that purpose since the war began. The O. D. T. request for 160,000 tons of steel for automotive replacement parts was cut to 155,000 tons, while it got only 15,000 of 20,000 tons asked for water transport.

In addition to the direct allocations, the W. P. B. set aside what the O. D. T. announcement called "an adequate reserve for railroad and local transit maintenance, repair and operating supplies."

N. & W. Shop Battalion Given Sendoff by French Shopmen

A friendly farewell was given a Norfolk & Western railway shop battalion, in France, on the eve of its departure from a large railway repair shop where it had worked for several weeks putting the railway equipment back in running order. There were speeches, flowers, and a special gift for the battalion—a pair of carved wooden bookends, bearing brass plates commenorating the event. A boilermaker in the shop presented the gift from the French shopmen, and Lt. Col. Miles G. Stevens, commanding officer of the battalion, thanked the assemblage on behalf of his outfit. Both national anthems were sung, and as Headquarters tells it, "after each speech, the shed resounded with the cheers of soldiers and workers, some of whom were perched on ladders, machines and locomotives. The cheers were accompanied by blasts on the whistles in the shop."

W. P. B. Removes Restrictions on Track Scales

All simplification restrictions on railway track scales have been removed by the War Production Board in an amendment to Order L-190 which became effective November 21. Also, production controls have been amended to permit an increase or decrease in production, as changing conditions may warrant; and several other changes have been effected to make L-190 "more workable under present conditions." The restrictions were originally put into effect in April, 1943.

October Traffic on Lakes

October's movement of grain on the Great Lakes showed an increase over the grain tonnage for October, 1943, while the movement of iron ore, limestone and coal declined, "due to increasing stockpiles and other factors," according to the Office of Defense Transportation.

The grain movement totaled 37,376,712 bushels, compared to 23,877,462 bushels in October, 1943. Iron ore, coal and limestone tonnages were, in turn, 10,594,988, compared to 11,612,542; 6,907,507, compared to 7,055,299; and 1,786,822, compared to 1,799,192.

Praises Movement of Cargo Through Ports

Careful control in these areas avoided danger of clogging, Somervell explains

Reviewing operations of the various branches of the Army Service Forces during the 1944 fiscal year, Lieut. Gen. Brehon B. Somervell, commanding, in his annual report, recently made public, has emphasized the magnitude of the task of transporting men and equipment overseas in this period, and of maintaining an adequate flow of supplies through the ports to support a two-front war.

During the year ended June 30, he pointed out, Army traffic handled within the United States by commercial carriers amounted to over 95 million tons, an increase of 26 per cent over the preceding year. Over 90 per cent of this total was moved by rail. A corresponding increase was shown in the movement of cargo through the ports, the increase in June being from 119,435 carloads in 1943 to 153,216 carloads in 1944. Despite this increase, the number of cars held at ports awaiting ship loading showed a decline in the same period, the number being 21,000 on June 30 this year as compared to 24,000 on the same 1943 date.

About 60 per cent of all Army cargo went across the Atlantic in the 1944 fiscal year, the report explained, and 40 per cent across the Pacific. The total tonnage moved overseas was around 40 million, as compared to 19 million in 1943. Including troop units, replacements, and other personnel, about 2,600,000 passengers were handled through the ports in the last fiscal year, as compared to 1,200,000 in 1943. About 70 per cent were carried to Atlantic theaters and 30 per cent to Pacific theaters.

The danger of clogged ports was successfully avoided, General Somervell explained, by careful control of movement of cargo into the port areas. Ports of embarkation and cargo ports on the Atlantic coast and the Gulf of Mexico handled approximately three-fourths of all overseas shipments, the remainder moving through Pacific ports. Special controls were maintained over the handling of explosives at the ports and there was no explosion of ammunition at any Army pier during the year.

Referring briefly to the period of Army control of the railroads at the beginning of the year, the report said that "the Army Service Forces were able to obtain the co-operation of both management and labor during the period of control, so that the lines were operating even more efficiently at the termination of War Department responsibility than at its beginning."

Headquarters' Switchboard Is M. R. S. Nerve Center

Termed the "nerve center of Military Railway Service headquarters," the small but "very busy telephone switchboard" at Allied Force headquarters in Italy is the means by which Brig. Gen. Carl R. Gray, Jr., and his departmental chiefs have kept in touch with each other and with the outside units "in their far-flung domain."

Though the title of this M. R. S. telephone exchange cannot be divulged, it can be said that in selecting it, "Boxcar" and "Flatcar" both were considered and rejected. The M. R. S. exchange is supervised by Maj. Frank J. Murphy, signal officer, formerly assistant signal supervisor on the Spokane division of the Great Northern. He has two trouble-shooters, Sgt. Joseph A. Chesmar, Bronx, N. Y., a former signal maintainer for the New York Central, at Harmon, N. Y., and T/4 Buhler

Pulling One Pair of Wires Out of More Than 2,000 Is Just Another Job for Sgt. Chesmar (top) and T/4 Ellis, Both Former Railroaders

L. Ellis, Opheim, Mont., who was a signalman on the Great Northern's Spokane division.

When first stationed at the building where headquarters was located until recently in Italy, the telephone men found that the Germans, who had occupied the offices before them, had demolished much of the communication mechanism, which to their surprise bore American nameplates.

First installing a board which could handle up to 100 extensions, the signalmen rigged up intricate inter-office buzzer systems, and corrected electric light difficulties, as well. Sergeants Chesmar and Ellis, who have been aided in their work by Italian helpers, declare "that after a year in Italy they can now speak the language with either or both hands."

One disadvantage of the Italian switchboard, it is said, develops from its metal construction, which, if not carefully handled, carries "quite a shock." Affected also by dampness, a large light bulb must be kept burning continuously to keep the board dried out.

Five operators man the switchboard, and alternate operators are called upon frequently. "They have to be masters of several languages," explains headquarters, "at least along the lines of common telephone conversation. For instance, 'busy' means just that to a fellow-American, but the British say a line is 'engaged', and the Italians refer to it as 'occupato'."

October Export Traffic

Cars of export freight, excluding coal and grain, handled through United States ports totaled 167,299 in October compared with 126,013 cars in October, 1943, or an increase of 33 per cent, according to the Association of American Railroads.

Export grain unloaded at the ports totaled 3,879 cars compared with 2,285 in October, 1943, or an increase of 70 per cent. The railroads handled 515 carloads of coastal freight in October, compared with 578 in the same month in 1943, or a decrease of 11 per cent. The total of 171,693 cars of export and coastal freight excluding coal handled through the ports represented an average daily unloading of 5,538 cars. This is the eighth consecutive month that the average daily unloading has exceeded 5,000 cars.

Fuel Shortage Continues to Badger Swedish Railroads

Because of the growing shortage in motor vehicles, and the insufficient supplies of gasoline and tires resulting from the war, Sweden's railways have experienced an abnormally heavy freight burden, reports Vice-Consul Harold Carlson of the U. S. Legation, Stockholm, in a recent issue of Foreign Commerce Weekly. An additional problem has been the growing shortage of fuel for motive power, the author reveals.

Detailing the question of traffic, Mr. Carlson explains that in the years from 1937 to 1943, freight carried (exclusive of Lapland ore) increased 92 per cent in ton-kilometers, while the quantity of freight transported showed a gain of 25 per cent. He suggests, however, that the freight peak probably was reached in the fall of last year, as Sweden since has discontinued the transporting of German war material.

Passenger traffic in passenger-kilometers showed an increase of 85 per cent from 1937 to 1942, due partly to military traffic which, the writer notes, by 1942 had amounted to 32 per cent of the total passengers carried on the State Railways and 22 per cent on the private lines.

Though two-thirds of Sweden's total railway mileage is not yet electrified, those lines which are electrified have carried about 75 per cent of all freight traffic handled. Estimates are that while electrification in the year 1943, had resulted in a saving of solid fuel equivalent to 1,200,000 metric tons of coal, Swedish railroads have nonetheless been affected by a serious fuel shortage. In 1938, Sweden's coal imports from Germany had been 60 per cent greater than the 4,800,000 metric tons of coal and coke imported in 1943, and the 1944 quota, fixed by trade agreement, has amounted to only 4,000,000 tons. This shortage has resulted in the use of such substitutes as wood, peat, tar, alcohol and shale oil.

Swollen wartime traffic has also necessitated an increase in railway personnel, with the 1942 figures of 59,404 employees on all Swedish railways being about 10,000 above normal.

On the State Railways, freight traffic in ton-kilometers, is four times that of private lines. It is reported that in 1938 the line length of the State Railways (government-owned lines) was 7,987 kilometers, of which but 20 kilometers were narrow-gage. In the same year private railways owned 5,219 kilometers of standard-gage line and 3,680 kilometers of narrow-gage. By the end of 1942, the picture had changed, and the State Railways had increased to 9,565 kilometers of standard-gage and 877 of narrow-gage. Private railways fell off to 3,637 kilometers of standard gage-line and 2,649 kilometers of narrow-gage.

Develops New Pallet for Car Loading and Storage

A new pallet for unitized loading and storage has been developed by the Army Quartermaster Corps as a result of experiments conducted at the Washington Quartermaster Depot, Cameron, Va. The new pallet or skid is single faced instead of double as the standard previously in use, it having been found that the previous type utilized unnecessary car and warehouse stacking space and also required additional labor.

According to an Army Services Forces press release of November 20, the new single-faced pallet is equally as strong as the double faced, but weighs 50 per cent less; and there is also a 48 per cent saving on lumber. Moreover, it reduces space taken up in palletized stacking, thus allowing the addition of another tier of items in a unitized carloading operation without interfering with three-pallet-high stacking in warehouses.

"Nerve and Know-How" Aided Crews, Says M. R. S. Officer

Army railroaders found it took "foresight as well as steam" to deliver supplies to General Patton's fast-moving Third Army, reports former-railroader Lt. Col. Frank Birthright, M. R. S. officer just back from France. (Colonel Birthright had been division superintendent on the Southern at Charleston, S. C., and chairman of the board of control of the North Charleston Terminal Company before entering the Army.)

"Sometimes we were ordered to bring a trainload to a designated spot only to be stopped en route and be re-routed because General Patton already was some place else," Colonel Birthright recalled. "It required almost a sixth sense to keep up with him, but more often we were delivering the goods faster than they could be unloaded. This was due to sheer nerve and know-how on the part of our crews, since a great many bridges had been destroyed either by the enemy or our own air forces and we were in constant danger of strafing and sabotage by the Germans."

The colonel said the Germans had left

most of the railroads intact, taking with them only some of the better-grade locomotives. "They left in such a hurry," he pointed out, "that we found some excellent rolling stock and even a few German and Swiss cars on the tracks."

Praising the outfit to which he had been assigned, Colonel Birthright said that "you could depend on them for anything. Once when there was desperate need for a crew near the front lines, a dispatch was sent to Paris asking for help. The reply received was: 'We'd come in a minute if we had a way of getting there.' They were told to take any means of transportation they could get. The next day the crew pulled into the station with an engine and a box car they had borrowed," the colonel recalled.

Says Barges Help Railroads on Oil Transport

Movement of petroleum and petroleum products in barges on the inland waterways will average 1,475,030 barrels a day in 1944, according to the Office of Defense Transportation. This figure, which does not include traffic on Pacific Coast streams, represents an increase of 18.1 per cent over the 1943 daily barge movement of 1,207,542 barrels.

"An important function of this barge movement," said L. C. Turner, head of O. D. T.'s Waterway Transport Department, "is that it serves as a pick-up and supply medium between widely separated railroad terminals, as well as between pipe line terminals. Without such supporting movement by the barges, the rails and pipe lines would not be able to keep an adequate wartime supply of petroleum and its products moving continually to the places where they are vitally needed."

Cornell Is Named Director of W. P. B. Equipment Division

George M. Cornell, deputy director of the Transportation Equipment Division, War Production Board, has been appointed director of the division, succeeding C. B. Bryant. Mr. Bryant returned on November 18 to the Southern where he is assistant to vice-president, in charge of research and tests. He had been on leave of absence since July 1 for the W. P. B. assignment.

Mr. Cornell was born in 1905 at Chicago and was educated at the University of Minnesota where he was awarded a B.S. degree in engineering; and at Yale University, where he received his M.S. in transportation engineering. During the 1925-1927 period, between the time of his graduation from the University of Minnesota and his studies at Yale under a Strathcona Fellowship, Mr. Cornell was in railroad service, first with the Minneapolis, St. Paul & Sault Ste. Marie and then with the Northern Pacific.

Upon completion of his studies at Yale he entered the employ of the Chesapeake & Ohio in May, 1929, as an assistant signalman. He then became, in turn, assistant engineer, and transportation inspector, the position he was holding in October, 1941, when he came to W. P. B. as chief of the Transportation Equipment Division's Maintenance of Way and Structures Section. He was promoted to assistant director of the Division in May, 1942, and had been deputy director for about a year prior to his promotion to the directorship.

Materials and Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since November 4, and which are of interest to railways:

Date of Order—Interpretation 12 to PR-1 now defines the date of a purchase order, for placing in sequence on order boards, as that date when manufacturer and customer agree on sufficient specifications to begin production. This definition will apply to all future orders, but is not retroactive, W. P. B. said, and not until sufficient specifications have been furnished is there an official order. Clarification of the meaning of "order" as used in PR-1, Section 944.7 (b) is necessary to provide sequence in production scheduling, W. P. B. officials pointed out. This provision of PR-1 states that, between conflicting orders that bear the same preference rating, precedence in scheduling must be given to the order that was received first with the rating. In many instances, specifications are not sent to the manufacturer with the purchase order, W. P. B. said. For example, where an engine manufacturer receives a rated order on February 1, for 50 engines for July delivery but the customer does not, until March 1, furnish the specifications as to carburetors, pumps, or other equipment necessary before the engines can be put into production, March 1, is to be considered as the date the order was received under the provisions of PR-1, W. P. B. said.

Electrical Conduit—Order L-225, which controlled the manufacture and sale of electrical conduit, electrical metallic tubing and raceways was revoked on October 28. The type of steel used in the manufacture of this equipment, chiefly small sizes of Bessemer tubular steel, is no longer in short supply and further control is unnecessary, W. P. B. said. Manufacturers and distributors, formerly permitted to sell conduit tubing and raceways only on preference ratings of AA-5 or better, may now make unrestricted sales and production is expected to increase somewhat.

White Pigments—The W. P. B. on November 4, amended Order M-353, governing the allocation of titanium dioxide and zinc sulfide pigments. The amendment canceled all ratings on non-military orders for white pigments, and only those orders accompanied by a military certification are valid rated orders. This action is intended to expedite military deliveries, and to place non-military orders on a more equitable basis, W. P. B. said.

Prices

Iron and Steel Scrap—Relaxation of provisions governing the sale of iron and steel scrap—a move designed to stimulate freer movement of scrap and thus stabilize the present unsettled market has been provided by Amendment No. 1 to MPR-4, effective November 16. Inventories of scrap in the hands of both consuming steel mills and scrap suppliers have declined nearly 1,000,000 tons in a year. At present they are lower than at the end of 1939 when steel requirements were much smaller than today because the giant war production program had not started. Anticipating an early end of the war in Europe, and with it a decline in the going prices of iron and steel scrap, some steel mills have been reducing their scrap purchases sharply, O. P. A. said.

As a result of these conditions, scrap has not been moving freely during the past three or four months, and in Eastern markets steel scrap generally is selling today around $3 per ton below official O. P. A. ceilings.

Collectors and processors of scrap in many areas are unable to find markets for their material at prices which will compensate them for their work. To prevent impairement of the scrap industry's collection and preparation machinery, O. P. A. has moved to relax pricing provisions which were established at a time when inflationary scrap prices threatened, but which in the present depressed market tend to hamper freedom in sales.

O. P. A. announced the following changes in its iron and steel scrap price regulations:

1—The restrictions upon the price which basic open hearth or blast furnace consumers may pay for the superior grades of electric furnace or foundry scrap are removed, providing a wider market for sellers of the superior grades of material. Previously, the price a basic open hearth or blast furnace consumer could pay for scrap of grades superior to open hearth or blast furnace grade was limited to the open hearth or blast furnace grade ceiling. In the case of such grades as Bar Crops and Plate Scrap, Grade 14, the basic open hearth consumer was required to pay $2.50 per ton less than the electric furnace consumer, in spite of the superior quality of the grade.

2—A wider market for all sellers of scrap is further provided by removal of restrictions upon the amount of freight the consumer can pay. Previously, the seller of scrap located at a basing point generally could not ship scrap away from that basing point without reducing prices in direct proportion to the freight he absorbed, or selling to a buyer under allocation.

3—Provisions with regard to mixed shipments are modified, in accordance with suggestions from the O. P. A. Iron and Steel Scrap Industry Advisory Committee. Hereafter, where a shipper invoices the different grades of scrap in one car, settlement may be made on the basis of the actual grades shipped. Previously, settlement for all mixed shipments had to be made at the price of the lowest-priced grade in the shipment. Where the seller invoices only one grade, the consumer is permitted to settle on the basis of the actual grade removed from the car if the balance of the car is returned. If the buyer and seller agree that no part of the car is to be returned, then settlement may be made on the basis of the lowest-priced grade in the car.

4—Brokerage fees of 50 cents per gross ton for brokerage services hereafter may be charged only where scrap is bought and sold at ceiling prices.

5—Ceiling prices have been reinstated to cover the grade of cut rails, two feet and under, and fixed at $3 over the No. 1 heavy railroad melting steel price.

6—Machine shops and forge shops hereafter will not be classified as consumers of steel scrap, and may purchase scrap axles and other items for machining and reworking at ceiling prices provided for reusable products, instead of the lower iron and steel scrap ceilings.

Ready-Mixed Paints—Order 2842 Under MPR-188, effective November 10, was designed to tighten control in pricing of some ready-mixed interior and exterior paint products made up of new or revised material content. As a result of the shortage of linseed oil ,the War Production Board has for some time required a reduction in the amount of that oil used in the manufacture of certain paint products. Although such a reduction has resulted in lower production costs, manufacturers have not been required by O. P. A. to reduce their established prices, provided the quality and serviceability of their products were not affected by the revised formulas.

In applying for prices for new or further revised products, some manufacturers have used for comparison purposes unit direct (material plus labor) cost for products with contents previously modified, and for which the unit direct cost was consequently reduced. When applied to the product being priced in such cases, the resulting maximum price represents an unwarranted increase, O. P. A. said, since it is based on an out-of-line mark-up.

The new order makes clear that when these new or further revised paint products are being priced, the unit direct cost of the original formula will be used for comparison purposes—rather than this cost for a product with previously revised material content.

GENERAL NEWS

Higher Wage Floor Meets Opposition

For different reasons, unions and management object to a 65 cent minimum

Spokesmen for the railway brotherhoods and for the managements appeared before a subcommittee of the Senate committee on education and labor on November 18 to point out what they considered objectionable features of Senate Concurrent Resolution 48, introduced by Senator Pepper, Democrat of Florida. The burden of the unions' criticism was that the minimum wage figure proposed in the resolution—65 cents per hour—was too low. The railroads, on the other hand, took the position that a mandate which results in increasing wage rates will make both the full employment and the price stabilization policies of the government even more difficult to put into effect than they now are.

To By-Pass "Little Steel"—The proposed legislation would not require the arbitrary establishment of a general 65 cent minimum hourly wage, but would indicate the view of Congress that, for the period of the present emergency, any wage rate less than 65 cents per hour is a "substandard" wage, and therefore an increase affecting it would not be subject to the so-called Little Steel formula's limitations, which exempt substandard rates. The policy as expressed in the resolution would be primarily for the guidance of the War Labor Board, and employees not subject to that board's jurisdiction, including railway employees, would be affected only indirectly.

The brotherhoods were represented before the subcommittee by Julius G. Luhrsen of the Railway Labor Executives Association and E. A. Doyle, national legislative representative of the Brotherhood of Maintenance of Way Employees. They spoke in favor of a higher level of wages for railroad employees, and indicated dissatisfaction with a minimum rate as low as 65 cents per hour.

The industry was represented by D. P. Loomis, executive director of the Association of Western Railways, who spoke for the Association of American Railroads, and by Clarence A. Miller, vice-president and general counsel of the American Short Line Railroad Association. After reviewing the recent history of railway wage rates, particularly those of unskilled workers in the minimum pay classifications, Mr. Loomis drew a comparison between the changes in rail employee minimum wage rates and in the cost of living, as shown by index figures of the Bureau of Labor Statistics of the Department of Labor, pointing out that the generally effective minimum wage for track labor is now 56.2 per cent greater than it was in 1920, although the cost of living index is 11.5 per cent less now than it was then.

Would Generate Other Increases—Mr. Loomis went on to ask the committee to consider the general effect on all industry in all sections of the country of the proposed legislation. (The chairman of the War Labor Board, William H. Davis, had given estimates indicating that general application of a 65 cents per hour minimum rate to all workers outside agriculture would increase the annual wage bill about four billion dollars.) General increases in industry would be reflected in agriculture, he added, showing up in increased production costs and higher prices for farm products.

Another angle stressed by the witness was the relationship between wage rates at different levels. If the wage floor is raised, he argued, there will follow an effort to get the higher wage levels raised proportionally. "To maintain the spread, or differentials existing between rates paid various classes of employees is a well fixed policy of the railway labor organizations and this was very apparent in the recent long drawn out controversy over the non-operating wage case," he said.

A Threat to Jobs—Moreover, Mr. Loomis concluded, "an increase in labor costs not only encourages, but actually results in, a higher degree of mechanization in industry." Congress should consider the possible effect on the maintenance of high levels of employment of policies tending to encourage the substitution of machines for man-power, he suggested. "In the post-war period of reconversion to a peace-time industrial basis there must be re-employment of millions of workers now engaged in war industry and more millions now in the armed forces. The Number One problem confronting the nation will continue to be the employment of these millions of workers, even greater in magnitude than during the immediate pre-war period."

October Operating Revenues Up 1.4 Per Cent from 1943

From preliminary reports of Class I roads representing 81.3 per cent of total operating revenues, the Association of American Railroads has estimated that the October gross totaled $656,119,787, an increase of 1.4 per cent over the $647,059,168 reported for October, 1943. Estimated October freight revenues were $489,994,741, compared with $481,819,246, an increase of 1.7 per cent. Estimated passenger revenues were $118,320,233, compared with $117,904,471, up 0.4 per cent.

R. V. Fletcher Named A. A. R. Research Head

Initiator of present big undertaking in this sphere will carry it on

The war in the Pacific is two months ahead of schedule but the railroads will continue to be prepared to handle westbound military traffic even though traffic to the European theater does not decrease substantially in the next few months, it was revealed at the annual meeting of the Association of American Railroads at Chicago, on November 15. Increased demands upon the railroads, resulting from the fast tempo of the two wars, were outlined by Col. J. M. Johnson, director of the Office of Defense Transportation, who pledged the co-operation of the government in assisting the railroads in the critical period which is immediately ahead. To insure adequate transportation to meet the demands of war, member roads plan to purchase as many freight cars as the car builders can deliver in 1945, about 55,000. This is in addition to the 38,000 freight cars now on order.

New Research Department—All directors and officers of the association were re-elected for the ensuing year. R. V. Fletcher, vice-president, was named vice-president—research; and J. Carter Fort, general counsel, was elected vice-president—law. Mr. Fletcher, who has been chairman of the Railroad Committee for the Study of Transportation since 1942, will head the new research department and co-ordinate all research activities of the various divisions of the Association. Under the original plan of organization of the A. A. R., which provides for the creation of the research department headed by a vice-president, research activities will be divided into two divisions, technical research and economic research, and the vice-president will have the authority to employ a director of each. Present plans provide for the completion of the study of economics by the Railroad Committee for the Study of Transportation, which has been active since 1942, rather than by the new division.

An advertising and public relations appropriation of $1,550,000 compared with $1,435,000 last year was approved for the year. Of this amount, $1,103,000 compared with $1,092,000 last year, is for advertising, the increase being provided to cover higher costs of production. The major increase in the budget was made to meet the requests of teachers and students for railroad data needed in the study of trans-

portation, as a result of the increasing interest in railroads. These requests are averaging about 100 a day.

Another matter considered at the meeting was an increase in per diem charges which are now $1 per day. Although no definite action was taken it was pointed out that costs, including taxes and other charges, have increased about 27 per cent.

No Signs of Faltering—The railroads are now handling about two and one-half times the amount of freight traffic and more than four times the volume of passenger business they did before the war, the Car Service division said in its report. "They are carrying," the report added, "virtually double the load of the first World War, and they are doing it with one-fourth fewer freight cars, about one-fourth fewer passenger train cars, and one-third fewer locomotives than in 1918. The reduction in freight cars alone amounts to about 600,000 units. The traffic has been handled without serious car shortages, or loss of production time at factories, or loss of foodstuffs, account spoilage, for want of transportation by rail.

"Today, after almost three years of handling the constantly mounting war load in a manner satisfactory to everyone, the old Iron Horse may be puffing and blowing, but he is still going strong and showing no signs of faltering."

The report pointed out that in the first half of 1944 compared with the same period in 1939, there were increases of 153.4 per cent in revenue ton-miles, 114.5 per cent in ton-miles, 350.3 per cent in passenger car-miles and 223.2 per cent in the amount of freight moved by rail to various ports for export.

One of the most serious problems facing the railroads is the handling of passenger traffic. Excluding commutation travel, railroads in the first half of 1944 carried 21,854,000 more passengers than in the same period last year while passenger miles increased 7,401 million.

"The total revenue passenger-miles, including commutation, for the first six months of 1944," the report added, "were four per cent greater than for the entire year of 1920, which was the peak prior to this war."

Box Car Supply Tight—Due to the demands of both war and commerce, the report said, the box car supply has been extremely tight in all parts of the country throughout the past year. Co-operation between the railroads and shippers has resulted in requirements being met with a minimum of delay and inconvenience. Despite an indicated all-time record production of wheat this year, the number of country elevators blocked daily for want of cars in both the southwest and northwest areas has been substantially less than one year ago.

Requirements of open top cars for coal, coke, ore, iron and steel as well as finished military impedimenta also have been heavy this year. By reason of the increased loading of slightly more than three tons per car in 1944 compared with 1927, the report said, a greater tonnage of coal has been transported by rail in the first 40 weeks of 1944 than in any previous corresponding period.

"New records in the volume of movement or distribution of coal," the report added, "have been established during the current year. Among these is the dumping of 42,601,744 net tons over the lower Lake Erie docks up to September 30. This is the largest coal tonnage ever dumped in any corresponding period via the lower Lake Erie ports. The total dumpings of coal for the year over these several docks, barring the unforeseen, will, at the close of navigation on the Great Lakes, establish an all-time high record for any one year."

There also has been an exceedingly heavy demand for all other types of freight cars, the report said.

Despite unprecedented movement of export freight, all ports are open and free of congestion. In September when a record average of 5,659 cars of export freight was unloaded at the ports daily, the amount on hand awaiting unloading was less than five days' supply.

New Economics Bureau Head With I. C. C. Since 1936

Dr. W. H. S. Stevens, whose appointment as director of the Bureau of Transport Economics and Statistics, Interstate Commerce Commission, was noted in the *Railway Age* of November 18, has been with the commission since 1936. He became assistant director of the bureau in 1938, the position he was holding at the time of his promotion to the directorship as successor to Dr. Max O. Lorenz, who retired on October 31.

Dr. Stevens was educated at Colby College, George Washington University, and the University of Pennsylvania, from the last of which he received his Ph.D. in economics. Teaching first at Wharton School, University of Pennsylvania, and then at Columbia University, he was professor of business organization and management at Tulane University when he resigned to join the staff of the Federal Trade Commission as a special expert for work in connection with unfair competition. He later became assistant chief economist for that agency, a position which he held for 15 years before joining the staff of the I. C. C. in 1936 as head economist in the Bureau of Statistics, predecessor to the Bureau of Transport Economics and Statistics.

Dr. W. H. S. Stevens

While at F. T. C. Dr. Stevens organized and supervised various investigations, including inquiries into agricultural income, stock dividends, and the salaries of the officers and directors of corporations. Meanwhile, he retained academic connections, teaching at the University of Maryland, the Graduate School of American University and Johns Hopkins.

Dr. Stevens edited "Industrial Combinations and Trusts" published by Macmillan, and is the author of books on "unfair competion," "Railway Sinking Funds and Funded Debt," a publication of the Bureau of Transport Economics and Statistics, and of the section on railway finance of the National Resources Planning Board's report on "Transportation and National Policy." He is also co-author of "Distribution of Natural Resources by Freight Rate Territories," and "Analysis of Steam Railway Dividends, 1890-1941," Bureau publications; and author of more than 30 monographs and special studies dealing with finance, marketing, and monopoly and competition, which have been published in various law and economics journals.

Ask Comment on Fuel Study

Pointing out that the subject-matter of its report on "Use and Cost of Railway Fuel and Problems in Fuel Statistics" is a subject of "continuing interest" to the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission, all persons who are interested have been invited by W. P. Bartel, secretary of the commission, to send him "comments on or criticisms of the report and to make suggestions as to the further study of the matter." Some of the points developed in the report were summarized in *Railway Age* of August 26, page 355.

All statements that may be offered in response to this invitation should be forwarded in duplicate not later than December 31, Mr. Bartel indicated. The results of the bureau's consideration of these comments will be released "in due course," it was explained.

Equipment on Order

Class I railroads on November 1 had 30,408 new freight cars on order, according to the Association of American Railroads. On the same date last year, they had 34,092 on order.

This year's November 1 total included 10,960 hopper, 2,625 gondolas, 229 flat, 12,750 plain box cars, 1,438 automobile box cars, 2,023 refrigerator, and 383 stock freight cars.

The Class I roads also had 519 new locomotives on order on November 1, compared with 1,039 on the same day in 1943. The former figure included 102 steam, two electric and 415 Diesel-electric locomotives, compared with 426 steam,

three electric and 610 Diesel-electric locomotives one year ago.

Class I roads put 30,832 new freight cars in service in the first ten months this year compared with 23,714 in the same period last year. Of the total installed so far this year, 4,676 were installed in October. Those installed in the first ten months included 13,211 hopper, 3,164 golndola, 1,286 flat, 2,270 automobile box, 10,443 plain box, 117 stock, 340 refrigerator freight cars and one other car.

They also put 783 new locomotives in service in the first ten months of 1944, of which 287 were steam, one electric and 495 Diesel-electric. New locomotives installed in the first ten months of 1943 totaled 574, of which 344 were steam, 15 electric and 215 Diesel-electric. New locomotives installed in October this year totaled 62, of which 20 were steam and 42 were Diesel-electric.

Show Cause Order on Extended Signal Protection

Paralleling its action with respect to the New York Central, the Interstate Commerce Commission, by Chairman Patterson, has served upon the Erie a show cause order, allowing that road until December 15 to file a formal return giving its grounds, if any, for not being required to install "a suitable block signal, automatic train control, cab signal or other system to provide increased protection" on a track owned by it and used by Big Four trains, extending from Cold Spring, Ohio, to Drawbridge, Dayton.

The order served upon the New York Central, as noted in *Railway Age* of October 7, page 557, followed upon a finding by the commission that at various Ohio points used by Big Four trains "there are facing point switches over which trains are operated at high rates of speed, and protection is inadequate."

State Commissioners Favor Land-Grant Repeal

The repeal of land-grant rates, and the amending of the railroad abandonment provisions of the Interstate Commerce Act were endorsed in resolutions passed at the 1944 War Conference of the National Association of Railroad and Utility Commissioners held at Omaha, Neb., on November 14-17. In addition the meeting went on record as opposed to the formation of a new Federal transportation agency as recommended by the Board of Investigation and Research and to proposals to change the relationship of state and federal regulatory agencies.

Officers elected for the ensuing year are as follows: President, George C. McConnaughey, chairman of the Public Utilities Commission of Ohio; first vice-president, John D. Biggs, chairman of the Illinois Commerce Commission; second vice-president, Duane T. Swanson, chairman of the Nebraska State Railway Commission; general solicitor, Frederick G. Hamley; assistant general solicitor and secretary, Ben Smart, re-elected.

The resolution favoring the repeal of land-grant rates favored the enactment of the Boren bill, H. R. 4184, and urged action at the present session of Congress. The Public Service Commission of North Dakota, through B. C. Larkin, one of its commissioners, contended that repeal should be made contingent upon the return to the federal government of lands that are not being used by the railroads. Some of those lands, he said, include coal, oil and timber.

The resolution affecting abandonments urged that no certificate be issued by the I. C. C. authorizing the abandonment of any railroad line or any portion thereof, unless the Commission shall first find that the continued operation of such line or portion of a line, will entail such financial loss as to be prejudicial to the public interest. It favored the Reed bill, S. 1489.

The resolution opposing the formation of a new transportation agency stated that the proposed agency would serve no useful purpose, would be a waste of public funds and would render more difficult the work of the I. C. C.

St. Lawrence Project Caught in a Procedural Tangle

Public hearings on the question of proper Senate procedure with respect to an international agreement with Canada dealing with the proposed St. Lawrence river development were begun November 21 by a subcommittee of the Senate commerce committee, headed by Senator Overton, Democrat of Louisiana. The immediate object was to determine whether or not such an agreement would be a treaty requiring ratification by the Senate.

Among others, Senators Overton and Bailey, the latter the chairman of the commerce committee, indicated a leaning toward the view that the matter should be handled as a treaty, in which case it would be a question for the committee on foreign relations to consider. On the other hand, if the commerce committee should decide, after the hearings on this phase of the question are completed, that the agreement need not be dealt with as a treaty, hearings by that committee on the merits of

* * * *

Diesel Instruction Class Sponsored by Baldwin

53 railroad and other users of Baldwin-Westinghouse Diesel locomotives recently attended the special 4-day course at the Baldwin plant in Eddystone, Pa., saw first-hand the manufacture of Diesels in progress, and learned of the capabilities of these engines and of correct maintenance methods. Previously, at East Pittsburgh, Westinghouse had conducted a similar school, with 37 "students" and 14 Westinghouse representatives in attendance. In the photograph above are: (standing, left foreground) S. W. Moser, who conducted the Baldwin class; (standing, extreme right) C. G. Green, assistant to L. W. Metzger, vice-president (who is second from right).

legislation authorizing the project would be in order.

One supporter of the project, Senator Aiken, Republican of Vermont, meanwhile had indicated his intention to get early action by offering an amendment to a bill now pending in the Senate, which, if passed, would constitute approval of the project.

Otto Kuhler Addresses Western Railway Club

In an illustrated address before the November 20 meeting of the Western Railway Club at Chicago, Otto Kuhler, recently-appointed design engineer of the American Car & Foundry Co., presented his opinion regarding probable future trends in railway equipment and service to the public. He stressed the importance of smooth rides, accomplished by welded rails and sound-deadening materials in trucks; pointed to many possible improvements in car details such as heating units in floors, wider windows, improved fluorescent lighting, automatic sliding doors, luggage handled through doors in the car side, etc.

He predicted that Diesel-electric motive power will be streamlined more in accordance with the principles of functional design and thus given a character all its own and vastly different from the present "purring box car." He showed slides of a "functional" enginehouse of the future and also illustrating what can be accomplished in streamlining and modernizing old station buildings.

Former B. I. R. Chairman Opens Law Office in Washington

Robert E. Webb, former chairman of the Board of Investigation and Research, has opened an office for the practice of law in Washington D. C. B. I. R., created by the Transportation Act of 1940, passed out of existence on September 18.

No Subsidies in British Railways' Plans for Air Network

British railways' plans for a post-war air network were discussed in detail by Lord Balfour (a director of the London & North Eastern) when the House of Lords met in debate October 12, and the railways' proposal, which has been submitted to the government, was described by him as "a modern magic carpet of travel." As the Railway Gazette (London) reports this session, Lord Balfour made plain that the four main-line railways regard air transport as a primary service, and not an auxiliary one.

Broadly, their plan calls for two interrelated air networks, one for Great Britain, the other radiating from Britain to principal destinations on the continent. As the Gazette points out, "Doubtless, if the plan is accepted and put into operation, the requisite legal powers so far as concerns this country and also the rights of transit and landing in foreign countries will be granted and negotiated respectively by the British government, but" that paper notes, "it is pertinent to recall that already the British main-line railways, under their Air Transport Acts of 1929, possess Parliamentary powers to provide, own, work, and use, air transport services for the conveyance of passengers, mails, parcels, and merchandise, not only in Great Britain, but to the continent and islands of Europe as far as the 20th degree of longitude east of Greenwich, that is, as far as places such as Stockholm, Danzig, Budapest and Brindisi."

Specifically, the proposals now before the government are:

1. To operate over all the main and subsidiary routes without subsidy, on the assumption that, by agreement between governments, no subsidies will be granted to anyone in the European field;

2. To form a new company to operate the network;

3. To offer partnership to other air operators, and to short-haul sea shipping interests which operated regular surface routes before the war similar to the railways' own cross-channel services (six shipping companies have already accepted the offer in principle);

4. To afford the public complete inter-availability of tickets over their land, sea, and air network;

5. To buy British equipment as soon as it is available. This plan will entail at the start a plane-mileage of 20,000,000 annually, to be increased progressively, as conditions warrant. The railways' air plan further calls for services on some 34 internal routes, within the British Isles, including Glasgow and Dublin, and provisional services to more than 100 places on the continent, by means of 19 routes extending to Paris, Brussels, Marseilles, Rome, Lisbon, Berlin, Moscow, Istanbul, Helsinki, Athens, and to Iceland.

While it is anticipated that there will be an initial period of loss, the railways believe they have resources to meet this contingency; they expect to break even before many more years, and eventually to reap a profit. The unknown factors which will first confront them will be such matters as fares, and post-war rates of exchange among continental countries.

The air craft first to be used will be 25-seater planes, which it is said will combine comfort and convenience of operation, with frequent services, and with much saving in time at customs. Typical flying times are noted: From the airports in London to Amsterdam, 1 hr. 12 min.; to Athens 9 hr. 5 min.; to Belfast 1 hr. 47 min.; to Lisbon 6 hr. 20 min.; to Ostend 43 min.; Paris 1 hr.; Moscow 8 hr. 47 min.

I. C. C. Service Orders

The provisions of Revised Service Order No. 242 of the Interstate Commerce Commission, establishing higher demurrage charges on certain classes of box cars, have been modified by Amendment No. 1 thereto, effective November 19. The purpose of the amendment is to bring cars bearing the BX designation in the Railway Equipment Register (that is, express cars) within the scope of the order when such cars are used in freight service. The same amendment changed the date of expiration of the increased demurrage rates applying to box cars, extending the end of the period when it is effective from November 19 to December 3.

By Amendment No. 1 to Service Order No. 246, the changes in the provisions of the general box car demurrage order just named were also made applicable to the State Belt of California.

Effective November 27, roads handling fruit and vegetable containers and box shooks in carloads from specified Texas and Arkansas points to destinations in the Texas Rio Grande Valley have been authorized by Service Order No. 254 to furnish up to three type RS refrigerator cars, suitably equipped with floor racks, in place of each box car ordered for the transportation of such commodities, subject to certain carload minimum weight restrictions. While the substitution is optional with the carriers, conservation of box cars is expected to result through this use of an otherwise empty refrigerator car movement.

Freight Car Loading

The total of carloadings for the week ended November 18 was not available at the time this issue of *Railway Age* went to press.

Loading of revenue freight for the week ended November 11 totaled 839,489 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, November 11

District	1944	1943	1942
Eastern	155,230	162,033	148,851
Allegheny	182,779	182,544	172,403
Pocahontas	47,483	55,951	54,961
Southern	121,842	122,634	120,914
Northwestern	119,695	108,207	121,876
Central Western	135,778	138,402	133,647
Southwestern	76,682	78,201	74,043
Total Western Districts	332,155	324,810	329,566
Total All Roads	839,489	847,972	826,695
Commodities			
Grain and grain products	51,511	51,988	41,340
Live stock	22,447	26,175	20,243
Coal	155,842	167,393	165,241
Coke	13,846	14,207	14,135
Forest products	39,956	42,915	42,647
Ore	53,554	44,262	60,152
Merchandise l.c.l.	108,052	107,291	91,065
Miscellaneous	394,281	393,741	391,872
November 11	839,489	847,972	826,695
November 4	893,333	754,739	829,663
October 28	916,446	883,727	890,560
October 21	905,941	905,419	903,262
October 14	898,650	912,348	901,251
Cumulative Total, 46 Weeks	38,752,734	37,629,600	38,407,791

In Canada.—Carloadings for the week ended November 11 totaled 74,835, as compared with 73,267 for the previous week and 73,652 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
Nov. 11, 1944	74,835	38,468
Nov. 4, 1944	73,267	40,765
Oct. 28, 1944	78,535	39,097
Nov. 13, 1943	73,652	38,296
Cumulative Totals for Canada		
Nov. 11, 1944	3,175,601	1,730,328
Nov. 13, 1943	2,993,238	1,801,631
Nov. 14, 1942	2,936,928	1,531,125

Switchmen's Union Cooperates by Canceling Convention

The Switchmen's Union of North America was on the latest Office of Defense Transportation list of organizations which have recently canceled meetings or conventions "in cooperation with the government's campaign for the curtailment of

non-war connected travel." The switchmen canceled their twenty-second annual meeting which had been scheduled for next June at Buffalo, N. Y. The O. D. T. announcment said that 170 organizations have thus far heeded the appeal, which will be carried over into 1945.

October Ton-Miles

The volume of freight traffic handled by Class I roads in October amounted to approximately 63,500,000,000 ton-miles, according to a preliminary estimate based on reports received by the Association of American Railroads. The decrease under October, 1943, was two and one-half per cent.

Class I railroads in the first ten months of 1944 performed two and one-half per cent more revenue ton-miles of service than in the same period of 1943. The 1944 total was 18 per cent greater than 1942 and 2¼ times that of the first ten months in 1939.

	1944	1943	Per cent Increase
First 8 months	495,733,012,000	478,773,954,000	3.5
September	*61,000,000,000	62,545,917,000	d2.5
October	†63,500,000,000	65,225,870,000	d2.6
10 months' total	620,273,490,000	606,545,741,000	2.3

* Revised estimate.
† Preliminary estimate.

The above table summarizes revenue ton-mile statistics for the first ten months of 1944 and 1943.

$34 Millions, Plus Interest, Asked by Pension Board

Because during 1943-44 more than 326,000 railroad workers have acquired more than 3,346,000 months of military service that is creditable to their retirement accounts, the Railroad Retirement Board is requesting an appropriation to the retirement account from the federal government of $34,795,000, plus interest, to cover the cost of the additional benefits payable, according to the monthly Review of the Board. In the last fiscal year, for the first time, lump-sum death benefits involving claims for military service after 1936 were adjudicated, but only two such benefits were certified. As yet, no employee annuity has been certified which was based in part on such service. By June 30, 1944, a total of 1,935 annuity applications had been received in which credit was claimed for military service performed before 1937. Only 227 resulted in an increase in the monthly annuity or in the certification of an annuity where the employee would otherwise have been ineligible. Of these certifications, 64 were made in the fiscal year 1943-44. The government's contribution for the latter is valued at $443,240. This amount, plus interest, will be added to the next congressional appropriation to the retirement account.

In September, placements verified by the Board's employment service numbered over 100,000 for the first time. The primary factor in the rise of placements to 101,000 in that month was the special effort made to recruit servicemen and other temporary workers for jobs in the New York and Chicago regions. More jobs were filled by women and veterans than in August. Referrals were also more numerous, rising to 118,400. While the number of orders received from covered employers dropped to 4,400, the number of openings reported was 2,700 above that in the preceding month. Unemployment insurance activity for month showed a small rise over that in August. The number of claims received and benefits certified increased by 2 per cent and 7 per cent, respectively. The seasonal decline in applications for certificate of benefit rights was less rapid than a year ago; 470 such applications were submitted by unemployed railroad workers during September, about 5 per cent more than during September, 1943. Following the seasonal reduction in applications for certificate of benefit rights, only 325 benefit accounts were opened. Benefits certified during the month totaled $40,100.

Employee annuities in September amounted to over $9,706,000, the highest monthly amount yet certified for this class of benefit. All benefit certifications totaled $11,642,000, a figure slightly under that for August. Applications for annuities numbered 2,018 during the month, and certifications, 1,562. At the end of the month, 141,000 annuities were in force at an average payment of $66.64. There were 20,200 pensions in force at an average of $59.24. The in-force figures of survivor and death-benefit annuities were 3,729 and 549, and the average payments were $31.87 and $36.11, respectively. The 1,570 lump-sum death benefits certified during the month averaged $375.14.

In 1943-44, 24,700 employee-annuity cases were handled, and 19,500 were disposed of during the year. Of the latter, 18,071 were certified for annuities, the remainder were closed without certification. A total of 32,900 potential claims for benefits arising out of deaths reported to the Board were also handled during the year. Dispositions of survivor benefits numbered 27,800, of which 16,500 were certified for benefits.

Would Revive Coal Act

Another bill to reenact the provisions of the Bituminous Coal Act of 1937 has been introduced in the House by Representative Dingell, Democrat of Michigan. It is H.R. 5491, proposing to revive the act and make it effective "until the first day of July three years after the cessation of hostilities in the present war."

Western Society of Engineers to Celebrate 75th Anniversary

The Western Society of Engineers, Chicago, will celebrate the seventy-fifth anniversary of the founding of the Society on December 5. Speakers include Robert R. McCormick, editor and publisher of the Chicago Daily Tribune, and Edward Kelly, mayor of Chicago. Honorary awards in recognition of engineering accomplishment will be bestowed upon two members, George H. Horton, president of the Chicago Bridge & Iron Works, and Daniel W. Mead, a construction engineer of Madison, Wis.

Sees Large Payments to Jobless in Years Ahead

Railroad unemployment insurance payments during the post-war period of adjustment may reach the $300,000,000 mark, according to estimates made by the research department of the Railroad Retirement Board. In the study, alternative estimates of the number of beneficiaries and the amount of unemployment insurance benefits were prepared for prosperous times and for moderate and deep depressions. These estimates were derived from alternative sets of estimates of the volume of industrial production, railroad traffic, railroad employment and unemployment. The amount of benefit under the three alternative conditions would be $60,000,000, $186,000,000 and $314,000,000 respectively. The amount in the unemployment account as of September 30, 1944, was $540,586,378 or more than enough to meet the severest condition. "When the war-time tempo of productive activity gives way to peace-time pace," the report states, "the board will be brought face to face with its first cyclical decline of railroad employment—one that will result in far greater unemployment insurance activities than the board has met thus far."

Under prosperous conditions, the report states, there will be a relatively small volume of unemployment insurance activities. Even assumptions of prosperity, however, cannot overlook the effects of "reconversion." Estimates of the number of beneficiaries, number of benefit payments, and amount of benefits were therefore prepared for an adjustment period of two years—a year following the victory in Europe and the first post-war year. Reconversion is expected to be substantially completed in the first post-war year. The number of beneficiaries in each year includes duplication to the extent that individuals will have unemployment both because of the general decline of employment and because of seasonal and intermittent unemployment and the same individual may experience unemployment in more than one year. The estimates are:

Year	Number of beneficiaries	Amount of benefits
Year after victory in Europe	155,000	$14,000,000
First post-war year	310,000	46,000,000
Total for 2 years	465,000	$60,000,000

"Under conditions of moderate depression, in which railroad employment will be significantly lower than under prosperous conditions, the unemployment insurance load will, of course, be considerably higher. Conditions of moderate depression have been interpreted here as a depression of approximately the same depth and length as that of 1920-22. The adjustment period, in addition to a period of reconversion, would include two additional depression years. A period of high economic activity may intervene between the reconversion period and the onset of the depression. In that event the timing of the adjustment period may be different than indicated by the assumptions.

but such a development would not greatly affect the estimates for the entire adjustment period. The estimates are:

Year	Number of beneficiaries	Amount of benefits
Year after victory in Europe	155,000	$14,000,000
First post-war year	310,000	46,000,000
Second post-war year	465,000	66,000,000
Third post-war year	355,000	60,000,000
Total for 4 years	1,285,000	$186,000,000

"The Board will be faced with the heaviest unemployment insurance load if a deep and protracted depression such as that which began in 1929 should develop. The number of individuals affected by unemployment will be larger and the duration of unemployment longer. The adjustment period will also be significantly longer. The estimates for each year in such an adjustment period are:

Year	Number of beneficiaries	Amount of benefits
Year after victory in Europe	155,000	$14,000,000
First post-war year	310,000	46,000,000
Second post-war year	415,000	61,000,000
Third post-war year	465,000	80,000,000
Fourth post-war year	355,000	74,000,000
Fifth post-war	230,000	39,000,000
Total for 6 years	1,930,000	$314,000,000

Berge Quibbles When Called on "Regional Monopoly" Charge

Following the attack upon the railroads and the Transportation Association of America made by Wendell Berge, assistant attorney general, at Kansas City, Mo., on August 7, Donald D. Conn, executive vice-president of the Association, asked Mr. Berge for the source and authority for his statement that the "railroads have now come forward with a plan for fastening upon the nation a complete transportation monopoly under their domination" and has not yet received a satisfactory answer.

Mr. Berge's answer to Mr. Conn's original query is as follows:

"Upon my return to the city I found your letter of September 18, 1944, commenting upon my speech at Kansas City on August 7. You inquire as to the basis of my statement that the railroads are the real backers of your transportation program. In this connection I may refer you to Senate Report No. 26, Part II, 77th Congress, first session, of which pages 42 through 47 discuss your organization. This public document discloses that the Association of American Railroads supplied $5,000 for preliminary expenses at the time the Transportation Association of America was organized; that the advantages of an ostensibly independent organization were quickly recognized by the railroads, and the policy of keeping the railroads in the background was carefully followed in order to avoid the appearance of railroad domination; and that major decisions made by your organization were first discussed with and approved by the Association of American Railroads. While, in view of the relationship between your Association and the Association of American Railroads, formal action by the Association of American Railroads in support of your integrated transportation program was not needed, nevertheless it appears that the executive committee of the A. A. R. adopted a resolution to that effect, which was reported in the Wall Street Journal of September 11, 1944.

"Whether your program should be called a 'plan' or an 'objective,' as you designate it in your letter of September 18, 1944, appears to me to involve a matter of words only. In your 'Monthly (public) Letter No. 3,' July, 1943, you state 'we have a plan.' It is plain, however, from all of your statements that you desire the railroads to engage in complete transportation service, utilizing all forms of carriage or facilities, as a single system. As you state, your proposal is 'that railroads would eventually become transportation companies.' You would permit a 'limited number' of such systems to exist, as well as such 'independent competitive carriers' as might be able to survive in the struggle with such all-inclusive systems. It would hardly be helpful for me to discuss here the merits of your integrated transportation program. You say that the multinodal systems to be established under your proposal will be 'competitive.' I assume you mean competitive in services, rather than in rates, since your pamphlet letter No. 7, dated February, 1944, apparently takes the view that competition in rates is undesirable."

Mr. Conn's reply of November 13 follows:

"A reply to my inquiry of September 18 would be greatly appreciated. It reads as follows: 'I am very much interested in the source of, and the authority for, the following quotation from page 15 of your text (Kansas City address of September 7, 1944: ". . . the railroads have now come forward with a plan for fastening upon the nation a complete transportation monopoly under their domination. This plan . . . contemplates the development of regional integrated transportation systems. . . ."'

"Your letter of October 19 reads in part: 'Upon my return to the city I found your letter of September 18, 1944, commenting upon my speech at Kansas City on August 7. You inquire as to the basis of my statement that the railroads are the real backers of your transportation program.'

"I made no such inquiry. Our people are very desirous to know the source and authority for your Kansas City statement and I would very much appreciate it if you would advise us in this respect.

"As to your comments relative to railroad support of this Association: There are 109 Class I railroad members. We are trying our best to enlist the others.

"While the original subscription of the A. A. R. of $5,000 was authorized for the purposes set forth in its covering resolution, it was not so accepted by this Association. Rather, it was finally subscribed on an annual membership basis and has been continued, as such, each year. The underwriting, or 'preliminary expense,' of this Association was defrayed by seven individuals, none of whom was connected with railroads.

"In addition to railroads, the Association's membership includes financial institutions of all kinds:—shippers, large and small. In fact, shippers constitute over 70 per cent of the voting membership.

"We consult all groups within the membership before our attitude is resolved on major issues. We seek to reconcile conflicting viewpoints; to bring about common accord on national problems affecting the common carrier industry. We believe such economic questions should be lifted out of the realm of politics and adjudicated through strictly research and educational processes. We believe such a factual approach is the first step by which the freedom of the American enterprise system can be preserved.

"You will be interested to know that the board of directors of this Association, as constituted one year after its incorporation, included four representatives of railroads; four of independent (non-affiliated) common carrier truck lines; two representatives of airlines, etc. The design of the Association gave all elements of the economy impartial representation.

"If the Senate Committee (1936-37) had been as diligent in examining the files of trucking companies, airlines and shippers, as it was in gathering information from railroad records, and if it had matched up the appeals which we made at the outset to all segments of industry, there would have been no basis whatever for the twisted implications and assumptions in the Senate Committee's final report.

"Anti-trust prohibitions conflict with sound regulation and discourage orderly progress of the common carrier industry in the public interest. It is our firm conviction that regulated transportation should be excluded therefrom.

"I would very much appreciate a response directed to my inquiry of September 18."

Club Meeting

The Northwest Car Men's Association will next meet December 12, at 8:00 p. m., in Eagles Hall, 113 University avenue, St. Paul, Minn. The paper to be presented by W. C. Stewart, technical advisor, American Institute of Bolt, Nut & Rivet Manufacturers, Cleveland, is entitled "Production and Use of Bolts and Nuts." Motion pictures are to be shown.

Construction

WAR DEPARTMENT.—The U. S. Engineers' Office has authorized construction of an industrial storage area in New Jersey at an approximate cost of $1,492,000. The project will include installation of spur tracks, boundary fence and fire protection equipment.

BALTIMORE & OHIO.—This railroad has awarded a contract for the construction of engine facilities at Columbus, O., at estimated cost of $20,000, to the Baker & Hickey Co. of Columbus.

CHICAGO, ROCK ISLAND & PACIFIC.—This road has been authorized by Division 4 of the Interstate Commerce Commission to proceed with the construction of a new single-track main line from a point near Paris, Iowa, to a point near Centerville, about 18 miles, in lieu of its present line between these points, and so to reduce distance 3.86 miles, ruling grade from 1 per cent to 0.5 per cent, maximum curvature from 4 deg. to 1 deg., total curvature from 813 deg. to 91 deg., and total rise and fall from 635 ft. to 392 ft. The new line is to have 112-lb. rail. Its net cost, to be met with treasury funds, is estimated at $2,405,000.

LOUISVILLE & NASHVILLE.—This road has completed plans for the following two construction projects, which will be undertaken at approximate costs of $45,000 and $87,403 respectively: Installation of a concrete lining in a portion of a tunnel at Tumlin Gap, Ala., and rearrangement of tracks and installation of a new interlocking plant at Henderson, Ky.

MISSOURI PACIFIC.—This road has applied to the Interstate Commerce Commission for authority to construct a 5-mile line from a point near Camden, Ark., northeasterly to a Navy ordnance plant, where it will connect with a government intra-plant line.

NEW YORK CENTRAL.—This railroad has awarded the following construction contracts: For pulling foundation piles at old transfer bridges, Weehawken, N. J., to the Henry DuBois' Sons Company, N. Y.; for alterations to its building at 40 Tenth Avenue, New York, to the Duffy Construction Corporation of New York; for alterations to its ticket office at 17 John street, New York, to Miller-Blyth, Inc., of New York; for additional mail facilities at Central Terminal, Buffalo, N. Y., to the John W. Cowper Company of Buffalo; for the construction of a yard office building at Buffalo, to George W. Walker & Sons, Inc., of Buffalo; for the construction of twin box culverts and grading and drainage in connection with a change of line and grade about two miles west of Canastota, N. Y., to the Fred Ballard Construction Company, Syracuse, N. Y.

PENNSYLVANIA.—This railroad has announced a $75,000 program for renovation of ticket and waiting room facilities in its Broad street station, Philadelphia, Pa., to be completed by mid-December. Under

the plan, the street floor will be given over to the sale of motor coach tickets and advance railroad reservations, and the sale of other railroad tickets transferred to 20 new booths on the train floor.

Supply Trade

David Newhall, has been elected vice-president in charge of the New York district of **Iron & Steel Products, Inc.,** Chicago, with headquarters at 780 Riverside Drive, New York. Mr. Newhall served the company in the same capacity several years ago.

Rowland S. Folk has been appointed eastern sales manager of the **Chicago Railway Equipment Company,** with headquarters at New York. Mr. Folk was previously connected with the Valve Pilot Company.

W. H. Russell has been appointed district manager of the southwestern district sales office of the **Baldwin Locomotive Works,** with headquarters at St. Louis, Mo. In the *Railway Age* of November 18, Mr. Russell was reported incorrectly as having been appointed district manager of the southeastern district sales office.

John Thomas Gillespie, Jr., has been appointed manager of export sales for the **Watson-Stillman Company,** Roselle, N. J. During the past 2½ years Mr. Gillespie has been with the shipbuilding division of the War Production Board as chief of staff branch, and, prior thereto, with the Office of Production Management, distribution division, as chief, liaison section with the U. S. Maritime Commission. Prior to his service with the government, he was assistant to the president of the Wilson Welder & Metals Co., a subsidiary of the Air Reduction Company.

James Swanson has been appointed assistant purchasing agent in charge of all buying activities for the Clark Tructractor division of the **Clark Equipment Company** at Battle Creek, Mich., to succeed the late D. E. Leach.

The **LaPlant-Choate Manufacturing Company,** Cedar Rapids, Ia., has been awarded the Army-Navy "E" for the fourth time for outstanding achievement in the development and production of equipment essential to the war effort.

A new industrial research and development organization, the **Pyrene Development Corporation** of Newark, N. J., has been formed as a subsidiary of the **Pyrene Manufacturing Company,** also of Newark. The new organization will carry out research on fire extinguishing equipment and compounds and also work in the field of safety devices and other means for conserving life, health and property. The new officers, drawn from the executives and directors of the parent company, are **Charles G. Durfee,** president; **Edward J. Waring,** vice-president; and **Edward A. Clapp,** secretary and treasurer.

Frederick K. Krell, chairman of the trade promotion committee of the U. S. Junior Chamber of Commerce and state director of the Wisconsin Junior Chamber of Commerce, has been appointed advertising manager of the **Globe Steel Tubes Company,** with headquarters in the general sales department at Milwaukee, Wis.

The Sharon, Pa., works of the **Westinghouse Electric & Manufacturing Co.** has received a fourth star to add to its Army-Navy "E" burgee for continued excellence in the production of war materiel.

The **Timken Roller Bearing Company, Ltd.,** Canadian subsidiary of the Timken Roller Bearing Company of Canton, O., has purchased from the city of St. Thomas, Ontario, approximately seventy-five acres of ground on the east side in Talbot street, as the site of a new bearing and rock bit plant. Design of the plant buildings will be started immediately and operations, requiring an estimated three hundred employees, will begin as soon as possible.

James W. Corey, sales vice-president since 1940 of the **Reliance Electric & Engineering Co.,** Cleveland, O., has been elected president, to succeed **Clarence L. Collens.** Mr. Collens, who had served as president of the company for 37 years, has been elected to the newly-created position of chairman of the board.

A. M. Buxton, of the Tulsa, Okla., office of the **Cooper-Bessemer Corporation,** has been promoted to assistant sales manager, with headquarters at Mount Vernon, O. In addition to sharing responsibilities of the general sales manager, Mr. Buxton will direct the company's oil and gas field sales.

Clyde C. Sowards has returned to the **Copperweld Steel Company,** Glassport, Pa., after a 2½ year leave of absence during which he served in the U. S. Army, holding the rank of captain at the time he reverted to an inactive status. He will take up his former territory for Copperweld, the northern portion of the South Atlantic states.

David M. Salsbury, general manager of the **Westinghouse Electric Supply Company,** wholesale marketing outlet of the Westinghouse Electric & Manufacturing Co., has been elected vice-president and general manager to head the supply company's operations.

Lee P. Thomas has been appointed to the sales staff of the **Baldwin Locomotive Works'** north central district sales office at Chicago. Mr. Thomas formerly was employed in the engineering department of the Chicago, Indianapolis & Louisville for eight years and, prior thereto, with the Union Pacific's engineering department in research work for about six years. During his previous career he also served in engineering capacities with the General Steel Castings Corporation, the Davenport Locomotive & Manufacturing Co., the Caterpillar Tractor Company, and the Gustin-Bacon Manufacturing Company.

William J. Stebler, vice-president of the **General American Transportation Corporation,** has been transferred to Chicago as general supervisor of manufacturing for the entire corporation. Mr. Stebler is an alumnus of Duequesne University. He began his business career with the Conley Tank Car Company in Pittsburgh, Pa., in 1924, serving as traffic manager and mechanical

William J. Stebler

superintendent, and was elected vice-president, secretary and director of the Pennsylvania-Conley Tank Car Company in 1931. When the Pennsylvania-Conley Tank Car Company became a division of General American in 1936, Mr. Stebler was appointed general manager of the Pittsburgh district. He was transferred to General American's Sharon, Pa., works in April, 1942, and elected vice-president of the corporation in April, 1943.

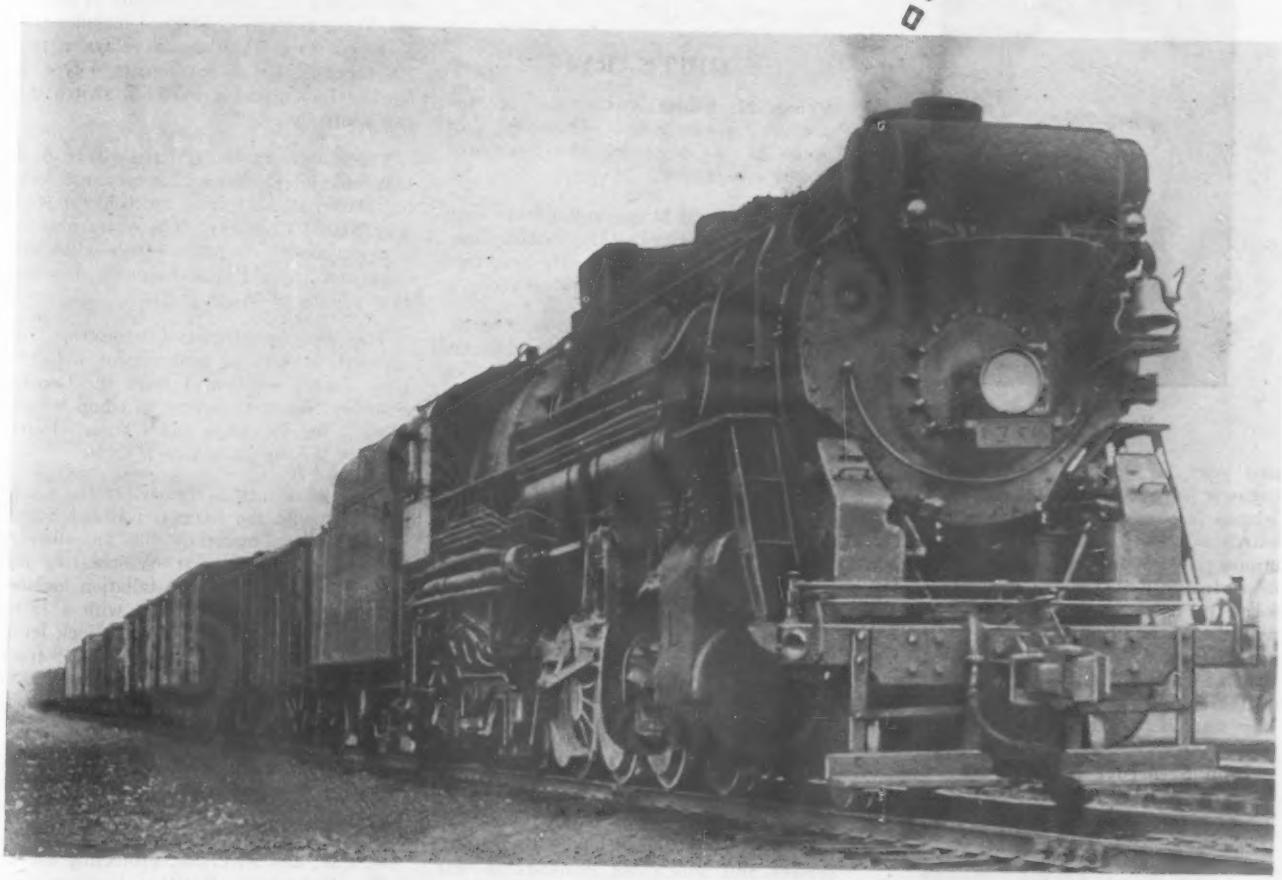
R. F. Abell, mechanical engineer for the Missouri Pacific, has been appointed assistant to the chief mechanical engineer of the **American Locomotive Company** with headquarters at Schenectady, N. Y. Mr. Abell completed his apprenticeship with the Atchison, Topeka & Santa Fe in 1916 and later was employed for several years

R. F. Abell

with the Missouri, Kansas & Texas. He interrupted his work with this latter road to join the U. S. Army Engineers Corps in 1917, serving for eleven months in France and for five months in Russia in the Kola peninsula district. He subsequently was employed for a year with the Commonwealth Steel Company, now a division of

News Department continued on next left-hand page

RECORDS
are made to be broken



Today, the railroads are performing transportation miracles with inadequate equipment. Tomorrow, peacetime industry will require still more exacting performance.

To meet such demands, Lima Super-Power steam locomotives are designed to haul heavier trains at higher speeds on longer runs.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS INCORPORATED, LIMA, OHIO

the General Steel Castings Corporation, before joining the Missouri Pacific in 1925 as general draftsman in locomotive design. He was transferred to the Missouri Pacific's southern properties as assistant mechanical engineer in 1928 and appointed mechanical engineer of the railroad in 1935.

Paul H. Crago has been appointed railroad representative of the **Federal Telephone & Radio Corp.,** manufacturing associate of the International Telephone & Telegraph Corp., to direct the company's activities in the railroad field. For the

Paul H. Crago

past year Mr. Crago has been executive engineer for Specialties, Inc., Syosset, Long Island, N. Y., an organization doing research and development work for the government. He was graduated from the Carnegie Institute of Technology in 1922. He formerly was associated for three years with the Nachod Signal Company in Louisville, Ky., and for eighteen years with the Union Switch & Signal Co., Swissvale, Pa., on the engineering and application of railway signaling systems and associated devices.

John S. Miller has been appointed to the commercial department of the Federal Telephone & Radio Corp. to contact the

John S. Miller

railroad field. Mr. Miller attended Lewis Institute of Technology and Northwestern University. He formerly was associated with the Pennsylvania and, for a number of years, with the Automatic Electric Sales Corporation in Chicago, contacting the railroad and petroleum fields.

F. B. Barclay, Jr., has been appointed assistant to the manager, western district sales, of the **General Steel Casting Corporation,** at Granite City, Ill. Mr. Barclay attended the University of the South, and joined the General Steel organization in 1930. After serving in the production department of the company's Eddystone, Pa., and Commonwealth plants, he was transferred to the sales department at Granite City in 1935. He was sent to the Chicago district sales office in 1939 and returned to the production department as assistant to the works manager, Commonwealth plant, in 1941.

OBITUARY

Frank N. Foote, comptroller for the Franklin Railway Supply Company, died October 28. Mr. Foote had been associated with the company for 25 years.

John Raymond Magarvey, former vice-president of the American Locomotive Company, who retired several years ago, died October 31. He was 88 years of age.

Edward M. Joyce, western sales manager of the Champion Rivet Company, Cleveland, Ohio, died in St. Paul, Minn., on November 14 of a heart ailment while on a business trip. At one time he was manager of the Cleveland Steel Car Company, and formerly was vice-president of the Illinois Car Manufacturing Company, Hammond, Ind. He was a brother of P. H. Joyce, president of the Chicago Great Western.

Equipment and Supplies

Burlington to Expand Communication Facilities

The Chicago, Burlington & Quincy will within the next few months, expand its teletype and telephone facilities to meet present and anticipated demands of war. The addition to present facilities will include the installation of several carrier telephone and teletype channels and apparatus and about 65 teletype machines at and between all principal terminals and division points, important intermediate stations, yards, storehouses and shops. About 1,500 mi. of wire and the new carrier apparatus will give the Burlington 6,000 mi. of new telephone and 15,000 mi. of new teletype channels. Under the arrangement for the carrier system to be installed, two of the channels will carry voice while the third will carry seven teletype circuits.

The work, which will be under the direction of H. H. Hasselbacher, superintendent of telegraph, will begin immediately and is expected to be completed during 1945. The project has been approved by the War Production Board.

LOCOMOTIVES

The Detroit Terminal has ordered two Diesel-electric switching locomotives of 1,000 hp. each from the Baltimore Locomotive Works.

FREIGHT CARS

The Great Northern. is inquiring for 250 52-ft. all welded flat cars of 70 tons' capacity. The railroad is also seeking 500 40½ ft. alloy steel gondola cars of 50 tons' capacity, as reported in the *Railway Age* of November 18, page 797.

SIGNALING

The Green Bay & Western has contracted with the General Railway Signal Company for materials for an automatic interlocking to control a crossing at Marshlan, Wis. Equipment ordered includes type K relays, type TG thermal relays, a type BT rectifier, 4 type SA signals, 4 type W marker lights, and a model 7 switch circuit controller.

The Southern has ordered a type A, 2-unit table interlocker with mechanical locking between levers from the General Railway Signal Company. The order also includes a model 5B dual control switch machine and 2 type F dwarf signals. Installation will be at Weems, Ala.

The Electro-Motive Corporation has ordered 10 sets of intermittent inductive train control equipment from the General Railway Signal Company to equip 6 locomotives for the Alton and 4 Diesel-electric engines for the Baltimore & Ohio.

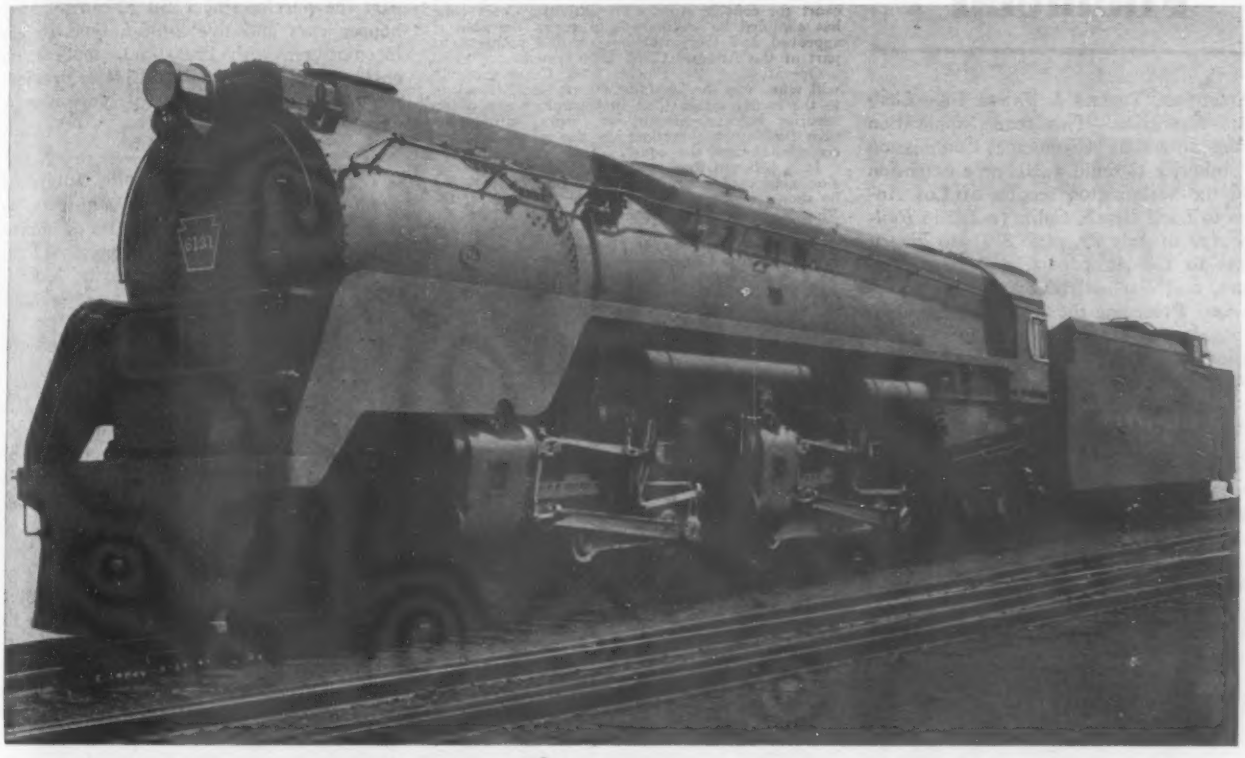
The Louisville & Nashville has placed an order with the General Railway Signal Company for materials for an all-relay electric interlocking at Winchester, Ky. The equipment for the installation includes a unit-wire control machine with a 15 in. by 17 in. panel having 1 switch lock lever, 3 signal levers, 3 push buttons, and 9 track indication lights. This machine will control 2 electric switch locks and 7 signals at a crossing.

The Atchison, Topeka & Santa Fe has placed orders with the Union Switch & Signal Company for materials to install centralized traffic control between Fullerton, Cal., and Riverside, protecting the 40-mile single track territory between these locations and a "Y" connection between Atwood on this line and Orange, a point on the Fullerton and San Diego section now under c.t.c. control. In addition to the new control machine to be located at Fullerton, the order includes M-22A dual control low voltage electric switch machines, type H-5 searchlight signals, DN-11 relays, housings, type T-21 hand controlled switch movements with SL-21 electric locks and U-5 switch circuit controllers. The field installation work will be done by railroad forces.

The New York Central has awarded a contract to the General Railway Signal Company for all-relay electric interlocking equipment to replace an existing interlocking at Bay Bridge, Sandusky, Ohio. Among the materials ordered is a 60 in. by 14 in. solid panel unit-wire control machine to control 19 switch machines, 13 signals, 2 rail locks and a bridge lock. This machine has 11 switch and lock levers, 13 signal

News Department continued on next left-hand page

Pennsylvania Railroad's ... New Fast Freight Engine



This Wartime Giant, P.R.R. Class Q-2, with its tender, built by the Pennsylvania Railroad, tips the scales at more than a million pounds. Overall length of the locomotive and tender is 124 feet 7 inches; its height is 16 feet 5 inches. The engine develops starting tractive effort (pull exerted on a standing train) of 114,860 pounds. High pulling power is maintained up to 70 miles an hour.

These Locomotives are equipped with the new TYPE E Locomotive Boosters.*

*Trade Mark Reg. U.S. Pat Off.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

levers and 19 track indication lights. Also included in this order are 128 type B relays, a 3-panel B relay rack, 5 model 9A electric switch locks, 7 model 7 switch circuit controllers, 2 type F dwarf signals, and 4 model 5D and 1 model 5C switch machines.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Long Beach Extension.*—This road's application to the Interstate Commerce Commission for authority to build a 2.02-mile extension from the Wilmington section of Los Angeles to Long Beach, Calif. (noted in *Railway Age* of July 29, page 219), to give it access to the latter port, will be argued before, and disposed of by, the full commission. Preceding the argument, the usual proposed report procedure, including submission of briefs, will be followed. The application is opposed by other roads serving Long Beach, and other interested parties have intervened in the proceeding.

ATLANTIC COAST LINE.—*Acquisition of Florida East Coast Stock.*—Supplementing the announcement (reported in this column in the issue of November 18, page 798) that this company had agreed to purchase 60 per cent of the new common stock of the Florida East Coast, upon consummation of that road's reorganization, provided that the Interstate Commerce Commission and the court should approve the plan proposed to make that transaction effective, C. McD. Davis, president of the A. C. L., has issued a statement indicating that no officers or employees of the F. E. C. would be affected if the plan should be carried out, and that existing joint through routes to and from F. E. C. points in connection with the Southern and Seaboard Air Line would not be closed.

Mr. Davis said, in part:

> For many, many years the two railroads, Florida East Coast and Atlantic Coast Line, have daily interchanged a large volume of freight traffic at Jacksonville, also a large volume of passenger travel moving from and to the east coast of Florida. In other respects relations between the two railroads are close. Since construction of the Florida East Coast, the Coast Line has worked in very close affiliation with that railroad, and Coast Line's transportation service from and to the east coast of Florida has been rendered exclusively by its operation as a direct connection of the Florida East Coast. Years ago the two companies established at Jacksonville joint freight terminals for interchange of northbound and southbound traffic. The two railroads have jointly extended their through route to Havana, Cuba, by the medium of common ownership and operation (temporarily suspended during the war emergency) of Peninsular & Occidental Steamship Company.
>
> In addition to its traffic interchange with the Florida East Coast, the Coast Line has, during same period, been handling from and to central and south Florida substantially the same type of freight traffic, also passenger travel, as is being handled by the Florida East Coast. All through passenger service of the Florida East Coast from and to Eastern cities is and for years has been in connection with the Coast Line. The same is true as to through passenger trains between Chicago, St. Louis and other Western cities and the east coast of Florida. Freight trains of the Coast Line in operation north of Jacksonville handle not only freight traffic from and to central and south Florida but also in same trains freight traffic from and to the east coast of Florida in connection with the Florida East Coast. The geographical location of the Florida East Coast Railway in respect to that of the Coast Line is such that the Florida East Coast is in a sense a practical extension of the rails of the Coast Line from and to the east coast of Florida, which territory the Atlantic Coast Line does not serve except in connection with the Florida East Coast.
>
> Certain holders of first and refunding mortgage bonds of Florida East Coast Railway have been in negotiation with the management of the Coast Line, requesting the latter to permit a revised plan of reorganization to be submitted to the Interstate Commerce Commission, the purpose of which would be to enable operation of the Florida East Coast property as part of the Atlantic Coast Line system. . . . If the plan receives approval of the commission as filed or as the commission may amend it, it would be submitted to the federal court for consideration. The Atlantic Coast Line has signified its willingness to accept the plan if approved and thereafter operate the property as part of the Atlantic Coast Line system.
>
> Operation of the Florida East Coast property will remain in the hands of the trustees, reporting to the court, rather than in control of any of its security holders, present or future, until some plan for future operation has the sanction of the commission and the court.
>
> It is believed that at any hearings the Commission may hold a predominant public interest can be shown which would justify the operation of the Florida East Coast property as part of the Atlantic Coast Line. In addition to being predominantly in the public interest, the plan now proposed, in my opinion, is from a financial standpoint more favorable to the present creditors than any plan heretofore considered.
>
> It is recognized, of course, that the financial responsibility which under the proposed plan the Atlantic Coast Line would assume must also be considered by the Interstate Commerce Commission whose approval would be necessary before the Coast Line can assume the additional financial responsibility involved.

BALTIMORE & OHIO.—*Promissory Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $706,500 of series F promissory notes in evidence of, but not in payment for, the unpaid portion of the cost of 10 1,000-hp. Diesel-electric switching locomotives purchased under a conditional sales agreement from the Baldwin Locomotive Works at a total cost of $785,000.

BOSTON & MAINE.—*Lease of Boston Office Building.*—This road has filed with the Interstate Commerce Commission an application for authority to lease for a 15-year term, at an annual rental of $119,831, the office and freight terminal building at North Station, Boston, Mass., to which it now holds title. Upon receipt of authority from the appropriate agency the road will acquire the capital stock of the North Station Industrial Building, Inc., to which it proposes to transfer title to the building. Upon filing this application, the road at the same time filed a motion to dismiss on the ground that the transaction is not subject to the commission's jurisdiction.

CHICAGO, BURLINGTON & QUINCY.—*Bonds.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to issue $40,000,000 of first and refunding mortgage 3¾ per cent bonds, due in 1974, sold at 99.137 to Morgan Stanley & Co. and others. The proceeds will be used in connection with the redemption of a like principal amount of first and refunding mortgage 5 per cent bonds, due in 1971. (Previous item in *Railway Age* of August 26, page 357). Over the life of the issue a net saving of $9,284,830 is anticipated as a result of this refinancing, and in addition the road is expected to benefit to the extent of $3,332,840 through federal tax reductions resulting from the transaction.

CHESAPEAKE & OHIO.—*Awards Equipment Certificates.*—On November 16, the Chesapeake & Ohio awarded, subject to Interstate Commerce Commission approval, its $3,600,000 issue of serial equipment trust certificates of 1944 to the Marine Midland Trust Company of New York, and associates, on a bid of 99.901 for 1¾ per cent obligations, an interest cost basis to the company of approximately 1,769 per cent. The certificates will be dated November 15, 1944, and mature in ten equal annual installments of $360,000 each, beginning in 1945. Proceeds will be used to finance in part the purchase of 1,250 50-ton all steel hopper cars and five 2-6-6-6 type freight locomotives, with 25,000-gal. tenders, to cost approximately $4,658,374. Previous item in the *Railway Age* of November 4, page 707.

CENTRAL OF GEORGIA.—*Promissory Notes.*—This road has applied to the Interstate Commerce Commission for authority to issue $1,450,488 of promissory notes in connection with its purchase, from the Pullman-Standard Car Manufacturing Co., of the following equipment at an aggregate cost of $2,417,480, of which 40 per cent is to be paid in cash: 650 50-ton box cars and 100 50-ton hopper cars.

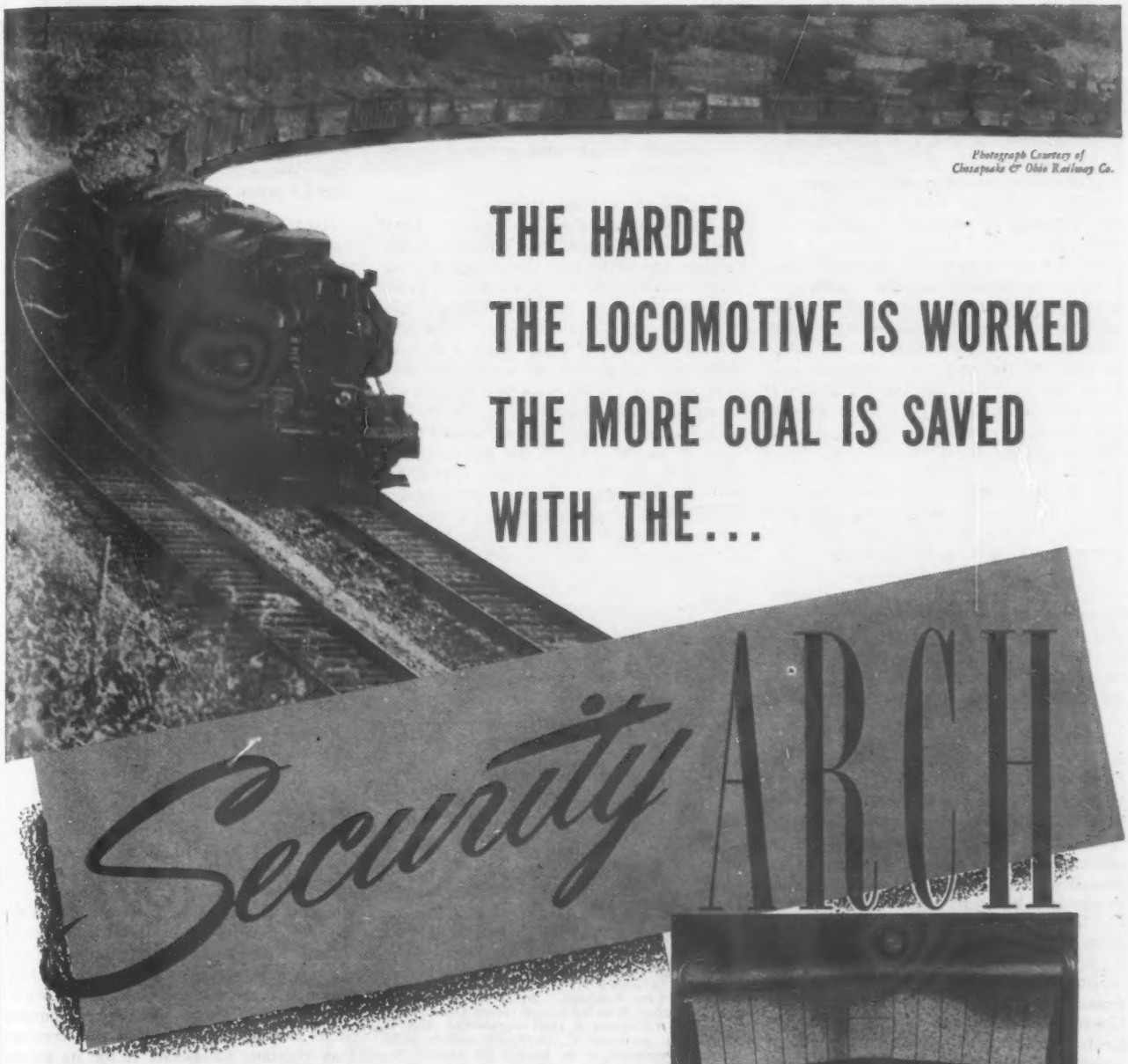
FLORIDA EAST COAST.—*Reorganization.*—The Interstate Commerce Commission has been advised of the opposition of the St. Joe Paper Co., owner of a majority of this road's first and refunding mortgage bonds, to the proposal of representatives of certain security holders (reported in this column in the issue of November 18, page 798) that the commission consider an alternative plan for the reorganization of the company which would provide for acquisition by the Atlantic Coast Line of 60 per cent of the new common stock. Terming this new proposal not only untimely but "unreasonable and unjust," the protestants took the position that the provisions suggested to the commission early this year represent the views of a majority of the creditors, while the new proposal is said not to have the support of a sufficient part of the creditors to meet the formal requirements for recognition.

MAINE CENTRAL.—*Refinancing.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue $9,000,000 of series B first mortgage and collateral 4 per cent bonds, due in 1954, and to sell them at 98½ as provided in a negotiated agreement. Exemption from the commission's competitive bidding requirements was justified in this case, the division found, for the reasons set forth by the road in its application. The proceeds will be used, with other funds, to redeem $9,878,000 of series A first mortgage and collateral 4 per cent bonds due in 1945.

Bonds Offered.—On November 15, an underwriting group headed by Kidder, Peabody & Co., offered for sale to the public at 100 and accrued interest, $4,500,000 of Maine Central first mortgage and collateral 4 per cent bonds due December 1, 1954. The balance of this issue is being sold to two insurance companies. (Previous item in *Railway Age* of October 21, page 638.)

OKLAHOMA CITY JUNCTION.—*Par Value of Stock.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue 10,000 shares of $20 par value common stock to be exchanged, share for share, for similar shares outstanding,

News Department continued on next left-hand page



Photograph Courtesy of Chesapeake & Ohio Railway Co.

THE HARDER THE LOCOMOTIVE IS WORKED THE MORE COAL IS SAVED WITH THE...

Security ARCH

When locomotive runs were short and train speeds slow, the Security Arch showed substantial fuel savings. With modern operation, involving long runs at high speeds, the Security Arch shows a greater economy. Today the Security Arch costs less per 1,000 ton miles and is a more important fuel saving factor than it was when the service was less severe.

With traffic demands boosting locomotive mileage a complete arch in the firebox is a fundamental to the economical use of coal.

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.

INCORPORATED

60 EAST 42nd STREET, NEW YORK, N. Y.

Locomotive Combustion Specialists

Maple Valley, Wash., to Taylor, 9 miles. (Previous item in *Railway Age* of July 15, page 137.)

SEABOARD AIR LINE.—In a proposed report Examiner Jerome K. Lyle has recommended that the Interstate Commerce Commission authorize this road to abandon its branch from Inverness Junction, Fla., to Inverness, 2.09 miles. The application was filed without prejudice to the road's contention that the line in question is a spur and not within the commission's jurisdiction as to abandonments, and the Florida Railroad Commission appeared at the hearing to uphold the same contention. The road's counsel explained, however, that the question of jurisdiction was raised so that a definite ruling would be made thereon, and expressed the opinion that the line is main line mileage within the meaning of section 1 (18) of the Interstate Commerce Act. Reviewing precedents tested in the courts, the examiner held that the commission had jurisdiction in this case, and that the line involved is not a spur, but is a line of railroad within the meaning of the act.

SOUTHERN.—This company has been denied authority to abandon a 50-mile segment of a branch from a point near Rome, Ga., to a point near Gadsden, Ala., under an order of Division 4 of the Interstate Commerce Commission. Such action was recommended by Examiner R. R. Molster in a proposed report (noted in *Railway Age* of May 27, page 1050), and was taken without prejudice to a renewal of the application after cessation of hostilities in the present war. Decision to deny authority to abandon was based in part, the report indicated, on absence of proper statistical information in the record and also on the adverse effect of wartime conditions on other transportation facilities available to the territory served by the line.

* * *

Poster No. 255, Which Is Self-Explanatory, Constitutes the November Installment of the "All the Year-Every Year Safety Program," Now Being Distributed by the Committee on Education, Safety Section, A. A. R.

Railway Officers

EXECUTIVE

William P. Libby, Jr., transportation assistant of the New York, New Haven & Hartford, has been named office assistant to the vice-president with headquarters, as before, at New Haven, Conn. He succeeds **Carl A. Mitchell,** whose appointment as personnel assistant is announced elsewhere in these columns.

Arthur X. Williams, whose appointment as assistant to the vice-president of the Reading with headquarters at Philadelphia, Pa., was announced in the *Railway Age* of November 18, was born on February 12,

Arthur X. Williams

1887. Mr. Williams entered railroad service as a clerk in the Ashley, Pa., shop office of the Central of New Jersey on August 1, 1906. He became timekeeper in December, 1908, and was advanced to chief clerk in August, 1919. He served in this position until he was appointed equipment assistant in the research bureau on September 1, 1925, becoming assistant chief clerk, office of the assistant senior vice-president and president the following February. He was named statistician, office of the vice-president and general manager, in December, 1930. On February 1, 1936, he was assigned to the office of the vice-president, Reading-Central of New Jersey, as clerk, advancing to chief clerk the following month. Mr. Williams remained in that post until he joined the Lehigh Valley in February, 1942, returning only recently to the Reading as assistant to the vice-president.

FINANCIAL, LEGAL AND ACCOUNTING

James B. Osborne and **John S. Marshall,** attorneys, have been appointed assistant general attorneys of the Chesapeake & Ohio, with headquarters at Cleveland, O.

B. F. Kuhlke, assistant to the general claim agent of the Central of Georgia at Savannah, Ga., has been appointed assistant general claim agent in charge of loss and damage. **H. C. Ozburn,** claim agent, has been named assistant general claim agent in charge of personal injuries.

OPERATING

F. W. H. Wehner, trainmaster of the San Antonio division of the Southern Pacific Lines in Texas and Louisiana, has been promoted to assistant superintendent of that division, with headquarters as before at El Paso, Tex.

N. N. Baily, superintendent of the Reading division of the Reading at Reading, Pa., has been named assistant general manager with the same headquarters. **L. R. Mumper,** superintendent of the Shamokin division at Tamaqua, Pa., has been transferred to the Reading division succeeding Mr. Baily; and **Charles J. O'Neill** has been named to succeed Mr. Mumper as superintendent of the Shamokin division at Tamaqua. Mr. Baily, who was born on August 8, 1903, entered railroad service as a levelman in the Reading's engineering department at Philadelphia, Pa., on October 1, 1925. The following month he became

N. N. Baily

assistant supervisor of the Harrisburg division at Harrisburg, Pa., transferring to the Reading division in March, 1926. He was named yardmaster of the Shamokin division at Catawissa, Pa., in July of that year, and then returned to Harrisburg as assistant to trainmaster of the Harrisburg division on March 1, 1928. He was advanced to assistant trainmaster of the Reading division at Crissona, Pa., in February, 1929, and transferred to St. Clair, Pa., in the same capacity on June 15, 1932. In July of the following year Mr. Baily became assistant superintendent of the Philadelphia division at Philadelphia. He returned to the Reading division as assistant superintendent at Reading in September, 1936, and was promoted to superintendent there on December 1, 1939, remaining in that post until his recent appointment as assistant geenral manager.

Mr. O'Neill was born on August 28, 1895, and entered railroad service with the Reading as a messenger at Wayne Junction, Philadelphia, Pa., in March, 1911. After serving successively as messenger, clerk, and waybill clerk at various Philadelphia's stations, he became ticket agent at the

News Department continued on second left-hand page

If the average daily mileage of freight locomotives had not increased 57 per cent since 1921 . . .

and the average mile-hour service of freight trains had not risen 115 per cent in the same period . . .

Then the railroads might not have been able to deliver all the things our fighters needed.

but the railroads did produce—magnificiently. Because they had steadily increased efficiency during 20 pre-war years, they were ready when the need came. Important among scores of factors responsible for this record of the railroads is HUNT-SPILLER *Air Furnace* GUN IRON. This wear-resisting material for vital parts helps keep locomotives on the job—moving war goods.

The HSGI applications are listed below. Every one is an efficiency increaser and money saver.

HSGI
Reg. U.S. Trade Mark
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings
Finished Parts
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

HUNT-SPILLER MFG. CORPORATION
N. C. Raymond, *President* E. J. Fuller, *Vice-Pres. & Gen. Mgr.*

Office & Works
383 Dorchester Ave. South Boston 27, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER GUN IRON
Air Furnace

THROTTLE CONTROL IS AIR'S NEWEST JOB

After 75 years of continuous braking service, air has taken over a new function in diesel-electric switching locomotives. It not only controls the *train* speed—but the *engine* speed as well.

With the engine idling, the setting up of the electrical control circuit and the regulation of engine speeds are all governed by movement of a single control handle. Positioning of the handle is precisely reflected in the positioning of the engine governor operator.

Railroad men familiar with air can picture the advantages of this type of control. It eliminates complicated mechanical linkage. Traction motors are connected to the generator prior to acceleration of the engine, which permits smooth starting. Where multiple power units are used, centralized control from one cab can be provided merely by adding a few simple pieces of equipment. Dependability and durability are the same as in the air brake.

75 Years of Pioneering

WESTINGHOUSE AIR BRAKE COMPANY, WILMERDING, PA.

1869 1944

TO PERMIT TODAY'S TRAINS TO MOVE AT SHORTER INTERVALS WITH HEAVIER LOADS AT HIGHER SPEEDS—SAFELY.

The No. 6-DS Brake Equipment with self-lapping independent brake valve was developed to meet the braking requirements of diesel-electric switchers.

The self-lapping principle provides smooth control of slack which greatly facilitates switching operations.

Laurel Hill, Pa., station, and later at the Essington, Pa., station. He returned to Philadelphia as a station agent in February,

Charles J. O'Neill

1920, and was advanced to supervisor of agents of the Philadelphia division in June, 1929. On December 5, 1934, he was named assistant manager at Port Richmond, Pa., and in June, 1936, he was appointed superintendent of the Reading Transportation Company at Philadelphia. The following year he became assistant superintendent of the Philadelphia division of the Reading and on January 16, 1942, he was named manager, office of the vice-president, the position he held at the time of his recent appointment as superintendent of the Shamokin division.

Dean F. Willey, general mechanical superintendent of the New York, New Haven & Hartford at New Haven, Conn., has been named assistant general manager in charge of engineering, maintenance and mechanical departments with the same headquarters. **H. E. Bixler,** superintendent of freight transportation at New Haven, has been appointed transportation assistant there succeeding **W. P. Libby, Jr.,** whose ap-

Dean F. Willey

pointment as office assistant to the vice-president is announced elsewhere in these columns. **F. J. Orner** has been named to succeed Mr. Bixler as superintendent of freight transportation.

Mr. Willey was born at Manchester, N. H., on August 5, 1896, and graduated from Massachusetts Institute of Technology in 1920. He entered railroad service with the New York, New Haven & Hartford in June, 1920, as assistant engineer, department of tests, and on April 1, 1923, he was appointed general material supervisor. In October of the same year he became mechanical inspector and in November, 1923, he was appointed foreman mechanical inspector at Boston, Mass., being promoted to acting general foreman in July, 1924. Mr. Willey became general foreman on November 1, 1924, and on September 16, 1925, he was appointed assistant to superintendent of shops at Readville, Mass., holding that position until May 16, 1930, when he returned to New Haven as special mechanical assistant. He served as mechanical superintendent from January, 1937, to May, 1941, when he was named general mechanical superintendent, the position he held at the time of his recent appointment as assistant general manager in charge of engineering, maintenance and mechanical departments at New Haven.

H. H. Tisdale has been appointed assistant to the general manager in charge of personnel, of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Cal., succeeding **L. D. Comer,** whose promotion to director of employment, with headquarters at Chicago, is reported elsewhere in these columns.

TRAFFIC

D. J. Rochford, division freight and passenger agent of the Wabash at Des Moines, Iowa, has been promoted to general agent, freight department, with headquarters at Milwaukee, Wis.

J. F. Brady, foreign freight agent of the New York Central, has been appointed assistant to the foreign freight traffic manager at New York. **J. B. Jerome,** export agent, has been named to succeed Mr. Brady as foreign freight agent.

W. J. Ficht, general passenger agent of the Seaboard Air Line at Tampa, Fla., has been named assistant to the passenger traffic manager at Norfolk, Va. **R. E. Blumenstiel** has been appointed assistant general passenger agent at Tampa.

Frank L. Jenkins, passenger traffic manager of the Southern at Washington, D. C., has been promoted to the newly created position of general passenger traffic manager.

W. Tap Bennett, manager of the Pine Mountain Valley (Ga.) Rural Community Corporation, has been named director of agricultural development of the Central of Georgia, with headquarters at Savannah, Ga.

Walter R. Tice, general agent of the Missouri-Illinois (part of the Missouri Pacific) at Pittsburgh, Pa., has been appointed assistant general freight agent at St. Louis, Mo. **R. S. White** has been named to succeed Mr. Tice as general agent at Pittsburgh.

Walter J. Dundon, whose promotion to general freight agent of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, was reported in the *Railway Age* of October 7, was born at Chicago on May 27, 1890, and entered railway service in December, 1907, as a tariff clerk. He sub-

Walter J. Dundon

sequently served as chief division clerk, assistant chief clerk and chief clerk of the freight traffic department, with headquarters at Chicago until August 1, 1936, when he was promoted to assistant general freight agent, with the same headquarters, the position he held at the time of his new appointment.

Fred C. Furry, assistant general freight agent of the Illinois Central at Chicago, has been promoted to assistant freight traffic manager, with the same headquarters, succeeding **Willis L. Reeves,** whose death on October 29 was reported in the *Railway Age* of November 4. **Charles A. Sublett,** also an assistant general freight agent, has been advanced to general freight agent, with headquarters as before at Chicago, replacing **Robert A. Trovillion,** whose promotion to freight traffic manager in charge of rate matters was reported in the *Railway Age* of August 5.

J. Warren Lawson, whose appointment as general coal freight agent of the Reading at Philadelphia, Pa., was announced in the *Railway Age* of November 11, entered the service of the Reading as assistant station agent at Corsons, Pa., on June 18, 1917. He was furloughed for military duty from 1918 to August, 1919, when he returned to the Reading as agent at Plymouth Meeting, Pa. He became freight traffic representative in August, 1923, and traveling freight agent at Philadelphia on March 9, 1925. Three years later Mr. Lawson transferred to Rochester, N. Y., in the same capacity. He served as city freight agent at Reading, Pa., from November 1, 1933, to July 16, 1936, when he was named industrial agent at Philadelphia. He remained in this capacity until he was appointed general freight and passenger agent of the Pennsylvania-Reading Seashore Lines in February, 1939, the position he held at the time of his recent appointment as general coal freight agent of the Reading.

Paul S. Phenix, whose appointment as freight traffic manager of the Baltimore & Ohio at New York was announced in the *Railway Age* of November 11, was born at Portland, Me., on January 8, 1894, and was graduated from Phillips Exeter Academy in 1912 and Yale College in 1916. He entered railroad service in 1917 as an indus-

trial survey agent of the Baltimore & Ohio, returning to that road in the same capacity after serving as a second lieutenant in the United States Army Air Service from 1918 to 1920. In 1921 he was named division freight agent at Cumberland, Md., and the following year he was transferred to New

Paul S. Phenix

York. He served as assistant general freight agent at New York from 1925 to 1928, when he became general New England agent at Boston, Mass. Mr. Phenix returned to New York in 1937 as assistant freight traffic manager, the position he held at the time of his recent promotion to freight traffic manager there.

Harry Atkinson, whose appointment as assistant freight traffic manager of the Baltimore & Ohio at New York was announced in the *Railway Age* of November 11, was born on October 30, 1884, at Philadelphia, Pa., and was educated at Drexel Institute and Oxford Preparatory School, Leeds, England. Before entering the service of the Baltimore & Ohio he was with the Baltimore & Philadelphia Steamship Company, Eastern New York & New England Coal Association, Philadelphia & New Orleans Transportation Company, John Lucas & Company, Philadelphia, U. S. Shipping

Harry Atkinson

Board, and Judson Freight Forwarding Company. Mr. Atkinson joined the Baltimore & Ohio in April, 1920, as freight representative at Philadelphia, and was advanced to foreign freight agent in July, 1922, being transferred in the same capacity on July 1, 1935, to Chicago. He was appointed assistant general freight agent at New York on February 2, 1928, and general New England agent at Boston, Mass., on November 1, 1937. In November, 1939, he was named general freight agent at New York, the position he held at the time of his recent promotion to assistant freight traffic manager.

MECHANICAL

Philip H. Hatch, mechanical engineer of the New York, New Haven & Hartford at New Haven, Conn., has been appointed general mechanical superintendent with the same headquarters, succeeding **Dean F. Willey,** whose appointment as assistant general manager in charge of engineering, maintenance, and mechanical departments is announced elsewhere in these columns. A photograph and a biographical sketch of Mr. Hatch's railway career appeared in the May 20 issue of *Railway Age,* at the time of his appointment as mechanical engineer.

SPECIAL

L. D. Comer, assistant to the general manager of the Coast Lines of the Atchison, Topeka & Santa Fe at Los Angeles, Cal., has been promoted to director of employment, with headquarters at Chicago, succeeding **A. W. Motley,** who has resigned. Mr. Comer entered railway service in December, 1919, as a stenographer of the

L. D. Comer

Santa Fe at Raton, N. M., and after serving in various minor capacities at La Junta, Colo., and Amarillo, Tex., he was assigned in 1923 to the personnel department, with headquarters at Chicago. In 1939 Mr. Comer was granted a leave of absence to serve with the Railway Adjustment Board, and on January 1, 1941, he returned to the Santa Fe as manager of personnel at Chicago. In July, 1942, he was advanced to the position he held at the time of his new appointment.

Carl A. Mitchell, office assistant to the vice-president of the New York, New Haven & Hartford, has been appointed personnel assistant with headquarters as before at New Haven, Conn.

PURCHASES AND STORES

James B. Fraser, whose appointment as general storekeeper of the Atlantic region of the Canadian National with headquarters at Moncton, N. B., was announced in the *Railway Age* of October 28, was born at Campbellton, N. B., and entered railroad service with the Intercolonial (now the Canadian National) as a clerk in 1911. He served as timekeeper and assistant gang foreman on the Campbellton division, and after seeing action in the first World War he returned to railroad work on September 1, 1918, as store car foreman at Transcona, Man. He was named assistant stores foreman in March, 1919, transferring to Leaside, Ont., the following August as stores foreman. After serving successsively as storekeeper at St. Malo, Que., Leaside, Toronto, Ont., and Montreal, Que., from 1921 to 1937, he was promoted to district storekeeper at Saskatoon, Sask. He transferred to Transcona in June, 1942, and remained there until his recent appointment as general storekeeper at Moncton.

OBITUARY

Ernest Edward Lloyd, who retired as vice-president and treasurer of the Canadian Pacific in 1934, died on October 30. He was 75 years old.

Angus Roderick McLeod, who retired earlier in the year as assistant superintendent, Quebec district, of the Canadian Pacific at Montreal, Que., died on October 25. He was 62 years old.

Walter S. Yeatts, assistant to the general traffic manager of the Pennsylvania at Philadelphia, Pa., died at Bryn Mawr, Pa., on November 19. He was 68 years old. Mr. Yeatts was born at Camden, N. J., on March 7, 1876, and graduated from Princeton University in 1897. He entered railroad service the following year as clerk to the manager of the Empire Line of the Pennsylvania at Philadelphia, later serving as rate clerk there from 1900 to 1903, when he was advanced to chief rate clerk. In 1904 Mr.Yeatts became freight solicitor at Wilmington, Del., and served successively in the same position at Pittsburgh, Pa., and Harrisburg, until 1912, when he was named Canadian freight agent at Toronto, Ont. He returned to Philadelphia as special agent, freight department, in 1914, and remained in this post until 1918, when he joined the Cumberland Valley (now the Pennsylvania) as general freight agent. Shortly thereafter he went with the United States Railroad Administration as freight assistant to the regional director at Philadelphia, re-joining the Pennsylvania in 1920 as assistant traffic manager. He was advanced to assistant freight traffic manager in 1929, and in 1932 he was appointed assistant to the general traffic manager, the position he held at the time of his death.

6,202 DAYS WITHOUT INJURY is the record of the Atlantic Coast Line's car inspection force as posted near the passenger train shed in Wilmington, N. C. The present crew, numbering 29, and directed by W. H. Best, head passenger car inspector, has worked in shifts throughout the 24-hr. period and, since a last reportable injury, has totaled 148,848 hours.

Do you do this ANNUALLY?

BALDWIN-WESTINGHOUSE INSPECTION RECORD

ELECTRICAL INSPECTION

ANNUAL

LOCOMOTIVE NUMBER..... MILES..... DATE.....

	(CHECK ONE)		
	OK	Corrected	Signed
A. *Traction Motors*			
1. Clean oil, grease and dirt from motors	☐	☐	.....
2. Blow out motors	☐	☐	.....
3. Lubricate gears if necessary	☐	☐	.....
4. Examine brushes and holders. Clean insulators	☐	☐	.....
5. Examine commutators	☐	☐	.....
6. Examine stringbands, bandwire, insulation	☐	☐	.....
a. Wipe these parts clean	☐	☐	.....
7. Clean dirt from around field coils	☐	☐	.....
8. Examine motor leads for chafing or damage	☐	☐	.....
9. Oil axle bearings	☐	☐	.....
10. See that all covers are tight	☐	☐	.....
11. Grease armature bearings	☐	☐	.....
12. Repack axle bearings	☐	☐	.....
B. *Generator, Auxiliary Generator, Exciter*			
1. Clean oil, grease and dirt from frames	☐	☐	.....
2. Blow out generating units	☐	☐	.....
3. Inspect main generator coupling	☐	☐	.....
4. Examine brushes and holders. Clean insulators	☐	☐	.....
5. Examine commutators	☐	☐	.....
6. Examine stringbands, bandwire, insulation	☐	☐	.....
a. Wipe these parts clean	☐	☐	.....
7. Clean dirt from around field coils	☐	☐	.....
8. Examine all cables, wires, straps	☐	☐	.....
9. Grease generator bearing	☐	☐	.....
10. Grease auxiliary generator-exciter bearings	☐	☐	.....

	OK
C. *Control*	
1. Examine throttle drum contacts and fingers	☐
a. Lubricate contact surface	☐
b. Check for proper finger tension	☐
2. Examine electrical parts of throttle operator	☐
3. Check operation and condition of air operated contactors	☐
4. Check operation and condition of magnetic contactors	☐
5. Check operation and condition of reverser	☐
a. Lubricate contact surface	☐
b. Check for proper finger tension	☐
6. Check operation and condition of relays	☐
7. Check operation and condition of voltage regulator	☐
8. Check reverse current relay	☐
9. Check resistors—no loose contacts or burns	☐
10. Miscellaneous:	
a. Check all interlock fingers and contacts	☐
b. All connections to be tight	☐
c. All supports to be tight	☐
d. All insulation clean	☐
11. Lubricate pistons—air operated contactors	☐
12. Lubricate pistons—reverser	☐
13. Lubricate reverser bearings	☐
14. Check settings of relays	☐
15. Recondition control air cylinders needed	☐

tinued

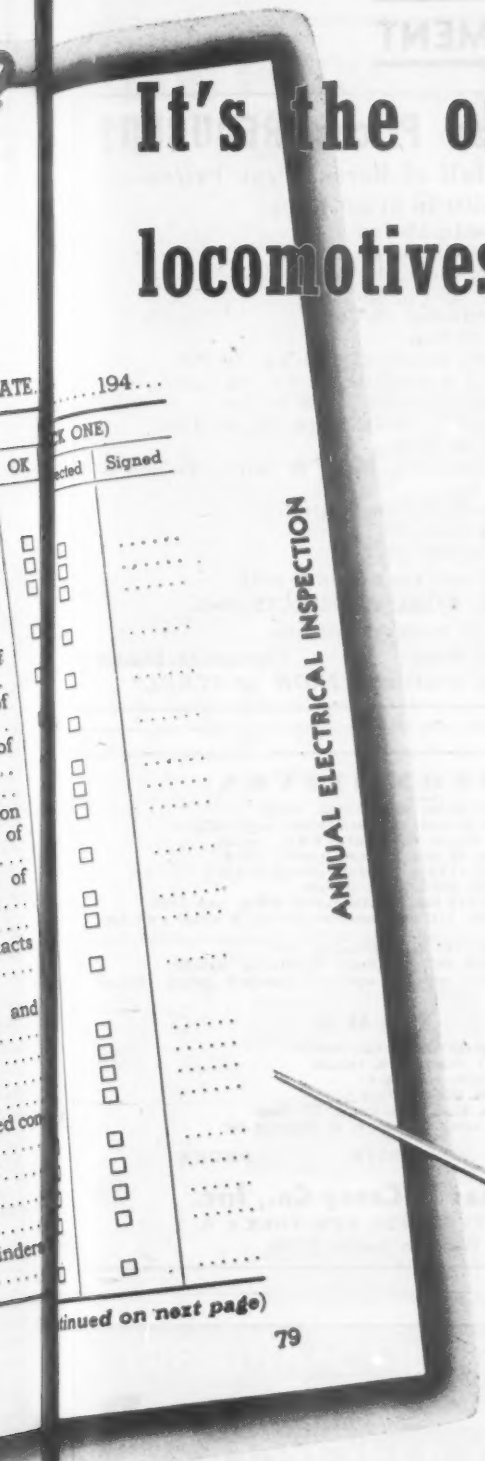
Since 1893 Baldwin and Westinghouse have pooled their experience in building electric and diesel-electric locomotives

THE BALDWIN GROUP

BALDWIN

DIESEL-ELECTRIC

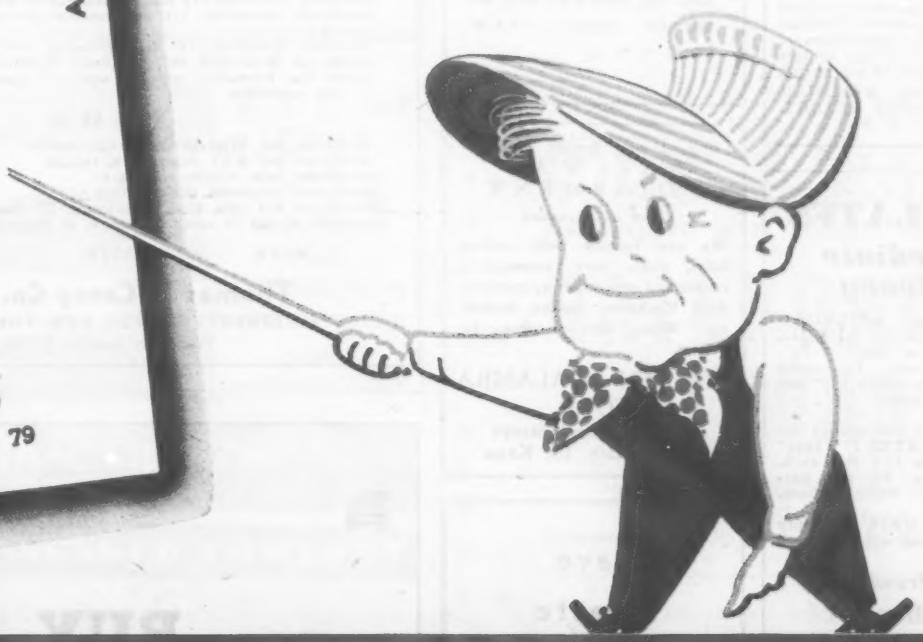
It's the only way to keep your locomotives in *Fighting Trim*



When your Baldwin-Westinghouse Locomotives have a birthday, the finest way to celebrate the occasion is with a *planned* check-up because that's the way to insure another 365 trouble-free days of dependable service.

This specimen record sheet from the Baldwin-Westinghouse Guide shows how the work can be simplified and certified. Checking is itemized, step-by-step, no chance for anything to be overlooked or forgotten. And the sheets become a permanent detailed maintenance record.

Ask for full information on the planned inspection service that pays out in thousands of extra miles.



Westinghouse

LOCOMOTIVES

THE BALDWIN LOCOMOTIVE WORKS
Advertising Department
Paschall P. O., Phila. 42, Pa.

Please send information on your inspection and maintenance checking system.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

GET TOGETHER DEPARTMENT

Educational Services for RAILROAD MEN

Our New Service on Diesel Locomotive Operation is highly recommended for Engineers and Firemen

The Railway Educational Bureau
Omaha 2, Nebraska

POSITION OPEN

Wanted mechanical draftsman having experience in designing, laying out, detailing and estimating complete railroad freight cars for eastern city. Application to state age, education, experience, salary expected and date available. ADDRESS BOX 702, RAILWAY AGE, 30 CHURCH STREET, NEW YORK 7, N. Y.

POSITION OPEN

Pittsburgh, Pa.—
Engineering Draftsman — Civil Engineering graduate familiar with design and construction of railroad roadbed, tracks, bridges and buildings. $261.00 per month. Write BOX 705, RAILWAY AGE, 30 CHURCH STREET, NEW YORK 7, N. Y.

TIE PLATES

Immediate Delivery

30,000 good used RAILROAD TIE PLATES. LUNDIE TYPE. 7" x 10¾" x 5/16". Weight 11 lbs. each. Four spike holes. For rails having 5½" and 5⅜" width of base.

10,000 like good conditioned flat bottom TIE PLATES 7" x 10¾" x ½". Weight 11.5 lbs. each. Five spike holes. For rails having 5½" and 5" width of base.

WIRE or MAIL quantity wanted. Quotation will reach you promptly.

Address:
P. O. Box 704
Railway Age
30 CHURCH STREET
NEW YORK 7, N. Y.

For Engineering Sales

Large established industrial manufacturer of precision products used in all kinds of machinery and equipment has opening in Sales Engineering Department for man trained in Mechanical or Electrical Engineering with some shop and drawing room experience, preferably in railway field. This is a postwar proposition with headquarters in Metropolitan New York area. Good opportunity for advancement. Straight salary plus traveling expenses. Age 28 to 35 preferred. Write today giving college, qualifications and other vital information. Applicants chosen for consideration will be interviewed by the man for whom they will work. ADDRESS BOX 703, RAILWAY AGE, 30 CHURCH STREET, NEW YORK 7, N. Y.

Get our prices First
RAILWAY EQUIPMENT
and accessories

We can furnish rails, spikes, bolts, angle bars, locomotives, cranes and other railway material. Also Machines, motors, pumps, etc. Write, wire or phone inquiries.

SONKEN - GALAMBA CORP.
108 No. 2nd Street
Kansas City 18, Kans.

Save
Waste
Paper

Freight Car Prices REDUCED!

Now Only Half of Recent Peak Prices—
$500 to $1950 Each!

10, Hopper, Double, 50-Ton
10, Hopper, Side Discharge, 50-Ton
90, Refrigerator, 40-Ft., 40-Ton
16, Refrigerator, 36-Ft., 30-Ton
8, Ballast, Composite, 50-Ton
10, Box, 36-Ft., 40-Ton
3, Dump, Koppel, Automatic, 30-Yd., 50-Ton
18, Dump, K & J Automatic, 16-Yd., 40-Ton
4, Dump, Western, 20-Yd., 40 & 50-Ton
1, Dump, Koppel Drop Door, 20-Yd., 40-Ton
20, Flat, 40-Ft., 50-Ton
35, Gondola, Composite, 36-Ft. & 40-Ft., 40-Ton & 50-Ton
6, Gondola, Steel, 50-Ton, High Side
30, Tank, 8000-gallon, 40-Ton
10, Tank, 8000-gallon, 40-Ton

All cars are priced to sell!
IRON & STEEL PRODUCTS, INC.
39 years' experience
13486 S. Brainard Ave. **Chicago 33, Illinois**
"ANYTHING containing IRON or STEEL"

LOCOMOTIVES

1—16x24 American 50-ton saddle tank, 0-4-0
1—19x26 American 67-ton, separate tender, new 1923
2—21x24 Baldwin 78-ton side tanks, 0-6-0, rebuilt
1—21x28 American, 83 ton, separate tender, 0-6-0
4—23x30 American, 114-ton separate tender, 2-8-0, exceptionally fine conditioned engines
1—23x32 Baldwin, 119 ton, Consolidation, 2-8-0, new 1920
1—25x30" American, 118 ton, separate tender, 8 wheel switcher, 0-8-0
5—28x32 American, 181 ton, Mikados, 2-8-2
1—20 ton Whitcomb 36" ga. Diesel locomotive, Rebuilt.
1—20 ton Plymouth, gasoline operated standard gauge. Excellent condition.

CARS

1—20 cu. yd. Western dump car, rebuilt
4—20 cu. yd. K&J dump cars, rebuilt
10—50-ton twin hopper coal cars
23—50-ton composite gondola cars
100—40-ton box cars, steel underframe, 36' long
1—Brill Model 55 comb. passenger & baggage car

WIRE WRITE PHONE

Thomas F. Carey Co., Inc.
120 LIBERTY STREET, NEW YORK 6, N. Y.
Telephone Barclay 7-1770

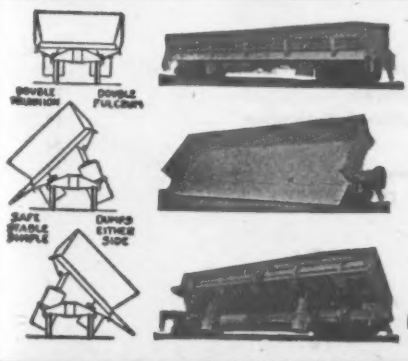
BUY

WAR BONDS

DON'T WORK IN THE WET

Protect yourself against wet working conditions by wearing Frog Brand Protective Work Clothing made by Sawyer. Over the years, during Peace and War, Frog Brand garments have continued to give complete, comfortable protection to men who must work in the wet, whether indoors or out.

THE H. M. SAWYER & SON CO.
East Cambridge, Mass.



AIR DUMP CARS

RAIL CARS
MINE CARS
AND
LOCOMOTIVES
AXLESS TRAINS
COMPLETE
HAULAGE SYSTEMS

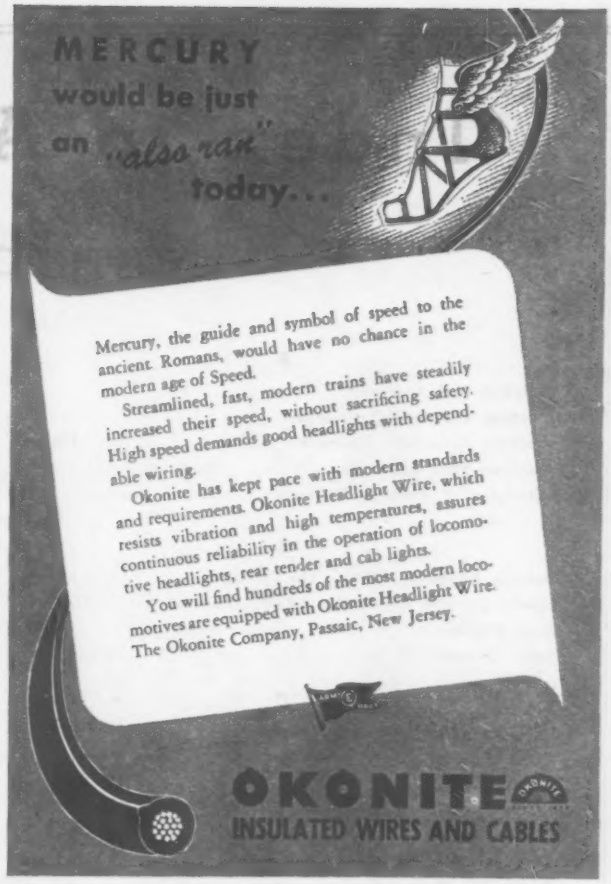
DIFFERENTIAL STEEL CAR CO.
FINDLAY, OHIO

INCREASED PASSENGER COMFORT

Steam Couplers
A. R. A. STANDARD
Flexible Conduits
REPLACES RUBBER HOSE
Vapor Systems
THERMOSTATIC CONTROL
Air Conditioning Controls

WITH
VAPOR
ENGINEERED PRODUCTS

VAPOR CAR HEATING CO. INC.
RAILWAY EXCHANGE, CHICAGO, ILL.


MERCURY
would be just
an "also ran"
today...
Mercury, the guide and symbol of speed to the ancient Romans, would have no chance in the modern age of Speed.
Streamlined, fast, modern trains have steadily increased their speed, without sacrificing safety. High speed demands good headlights with dependable wiring.
Okonite has kept pace with modern standards and requirements. Okonite Headlight Wire, which resists vibration and high temperatures, assures continuous reliability in the operation of locomotive headlights, rear tender and cab lights.
You will find hundreds of the most modern locomotives are equipped with Okonite Headlight Wire.
The Okonite Company, Passaic, New Jersey.
OKONITE
INSULATED WIRES AND CABLES

The magnificent story of how the American railroads are helping to win World War II

RAILROADS AT WAR

by S. Kip Farrington, Jr.
Author of Railroading from the Head End
Introduction by James V. Forrestal, Secretary of The Navy

A graphic account by an expert of how the railroads have performed the greatest transportation job in history; bringing ore from Minnesota to the lake ports, moving oil to the East, carrying troops, materiel, coal, wheat, stock, mail and express. The explicit chapters tell the story of the amazing improvements since World War I that have made possible this enormous task.

Chapters cover railroad operating battalions, centralized traffic control, troop escorts, etc.

108 magnificent pictures by America's leading railroad and military photographers, plus a valve pilot tape, track diagrams of yards, signals and a C.T.C. graph.
$4.00

COWARD-McCANN, Inc., 2 W. 45th St., N. Y. 19

Index to Advertisers

November 25, 1944

A

American Arch Company 27
American Hair & Felt Company 18
American Locomotive Company 19a, 19b
American Steel Foundries 7
Association of American Railroads 20

B

Baldwin Locomotive Works, The 32, 33
Bendix Aviation Corporation (Radio Division) 10
Buda Company 9
Byers Company, A. M. ..... Front Cover

C

Carey Co., Inc., Thomas F. 34
Chase and Company, L. C. 18a, 18b, 18c
Coward-McCann, Inc. 35

D

Davenport Locomotive Works 12
Differential Steel Car Co. 35
Duryea Corporation, O. C. ..... Back Cover

E

Electro-Motive Division, General Motors Corporation 24

F

Fairbanks, Morse & Co. 15
Franklin Railway Supply Co., Inc. 26

G

Galvin Mfg. Corporation 19
General Electric Company 19a, 19b
Get Together Department 34

H

Harbison-Walker Refractories Co. 27
Hunt-Spiller Mfg. Corporation 29

I

Inland Steel Company 3
Iron & Steel Products, Inc. 34

K

Kerite Insulated Wire & Cable Company, Inc., The 43

L

Lima Locomotive Works, Inc. 25
Locomotive Firebox Company 8

M

Mt. Vernon Car Mfg. Co., Div. of H. K. Porter Company, Inc. 2

N

National Malleable and Steel Castings Co. 13

O

Ohio Locomotive Crane Co. 34
Okonite Company, The 35

P

Porter Company, Inc., H. K. 2
Pressed Steel Car Company, Inc. 4, 5

R

Railway Educational Bureau, The 34
Ryerson & Son, Inc., Joseph T. 42

S

Sawyer & Son Co., The H. M. 35
Schaefer Equipment Company 17
Simmons-Boardman Publishing Corporation 14
Sonken-Galamba Corp. 34
Sterling Engine Company 11
Superheater Company, The 28

T

Time, Inc. 6

U

Union Switch & Signal Company 22
United States Plywood Corporation 16

V

Vapor Car Heating Co., Inc. 35

W

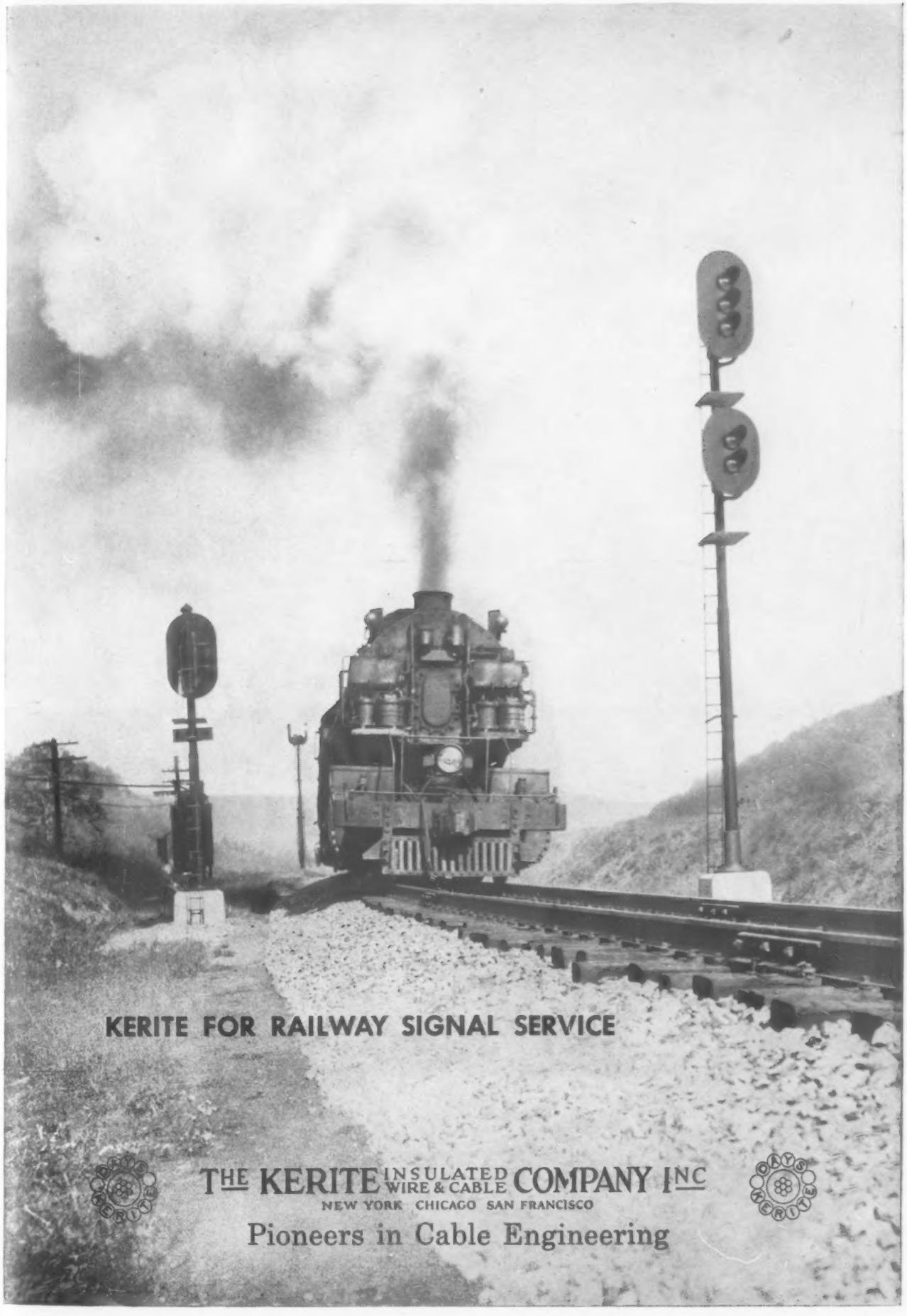
Westinghouse Air Brake Co. 30, 31

STEEL *in stock at* **RYERSON**

● Ryerson has the steel you need ready for immediate shipment. Ten convenient Ryerson plants stock more than ten thousand kinds, shapes and sizes of steel and allied products. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Principal Products Include:

Structurals	Strip	Stainless	Babbitt, Solder
Stay Bolt Iron	Alloys	Mechanical Tubing	Reinforcing
Plates	Cold Finished Steel	Boiler Tubes	Nails, Rivets, etc.
Sheets	Tool Steel	Welding Rod	Machinery


KERITE FOR RAILWAY SIGNAL SERVICE
THE KERITE INSULATED WIRE & CABLE COMPANY INC
NEW YORK CHICAGO SAN FRANCISCO
Pioneers in Cable Engineering

WHY DOESN'T THE FALL HURT HER?

If she hit that net and it *didn't move*, she's be headed for the hospital. But the force of the impact is *traveled* through the yielding net, through the arms and bodies of the men holding it, as they let the net ride with the blow.

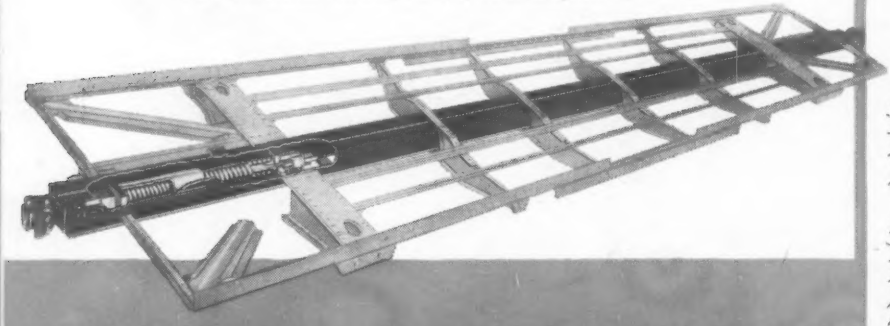
MOVEMENT CUSHIONS THE SHOCK!

The same principle, in the Duryea Cushion Underframe, gives you SHOCKPROOF SHIPPING.

When a Duryea-equipped car is hit, the force of the impact is *traveled* the entire length of the car—through big yielding cushion springs, through a floating center sill that moves freely with the direction of the blow. Car and lading *ride over* the jolt.

O. C. DURYEA CORPORATION

30 Rockefeller Plaza, New York 20, N.Y. - 135 So. LaSalle St., Chicago 3, Ill.
725 Fifteenth Street, N. W., Washington 5, D. C.



DURYEA *Cushion* UNDERFRAME

FOR FREIGHT CARS

The Modern Safeguard For Shockproof Shipping

How the Duryea Cushion Underframe Contributes to Victory

PROTECTS car and lading, prolongs car life, cuts damage claims.

PERMITS higher handling speeds.

ELIMINATES gear replacements maintaining efficiency for life of car.

SAVES TIME loading and unloading. Needs less packing and bracing.

SAVES MONEY usually spent for maintenance on every part of car.

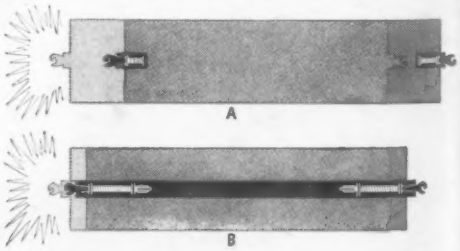
COMPLEMENTS air brake; Duryea cars withstand abrupt stops.

CUTS SLACK to pre-determined ideal.

COSTS NO MORE than conventional type, for average Duryea gear.

Here's what actually happens

. . . when two stationary freight cars receive the same impact, equivalent to a 50-ton car, loaded to capacity, coupling at a speed of 4 m.p.h.: CONVENTIONAL



CAR (A): Draft gear "goes solid," car receives almost entire impact.

DURYEA CAR (B): Shock absorbed by cushion gears, car and lading are comparatively undisturbed.